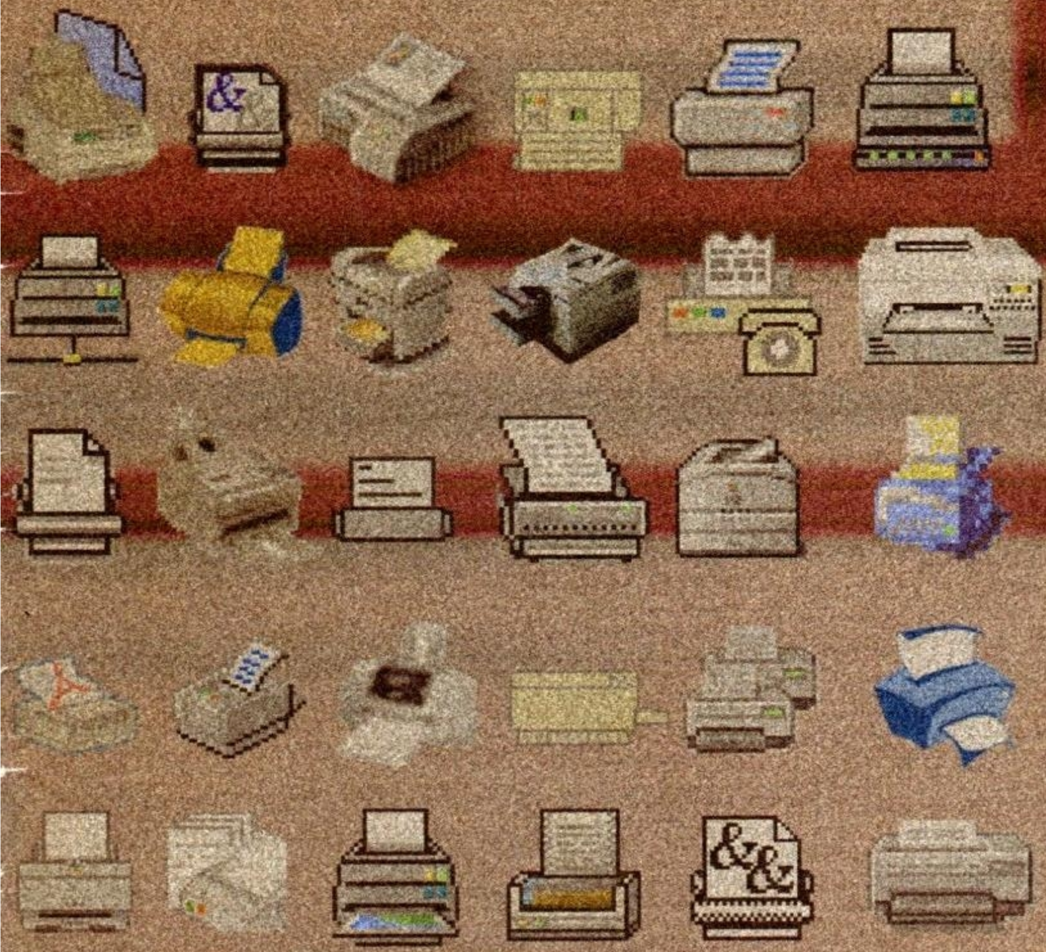
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RiscStation XG card, cable & keyboard	£245.95
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Sibelius 7 Student	£319.95
Sibelius 7	£520.95
Sibelius 2 for PC/Mac is also available	
Sound module serial port driver	£37.95

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RISC OS 4 (fitting & Select available)	£109.95
RiscStation second serial port	£10.95
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StrongARM & RISC OS 4 upgrade	£299.00
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Second hand machines and components:

These machines have mainly come from schools and businesses. As such there are various brandings, labels, markings, scratches, very occassional broken bits (e.g. front flaps) on the cases. All machines have been generally cleaned and air dusted inside to get rid of most of the dust, however the cases have not been meticulously cleaned as this would take a long time and increase the prices considerably. Any machines which have PC cards are usually 486 cards, but as these are basically worthless, their value has not been taken into account (and they might not have all the software on the disc to work them anyway). Get free carriage if you also take a monitor (the 'b' indicates an additional £10 carriage charge). Keyboard, mouse and mains cable included. Single slice machines do not have backplanes unless specified. Ethernet cards etc. can be taken out if not required. There is a three month warranty on these machines and they are supplied 'as seen', so to speak. All details are subject to change and please check availability before ordering.

A7000, RISC OS 3.6, 8Mb, 406Mb HD, 10BaseT ethernet card, fan	£60.00b
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A7000, RISC OS 3.6, 20Mb, 406Mb HD, Combi ethernet card	£60.00b
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A7000+, RISC OS 3.71, 16Mb, 163Mb HD, 10BaseT ethernet card	£70.00b
A7000+, RISC OS 3.71, 24Mb, 203Mb HD, 10BaseT ethernet card	£70.00b
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RPC 610, RISC OS 3.5, 16+1Mb, 203Mb HD, Combi ethernet card, PC card	£110.00b
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RPC 710, RISC OS 3.5, 40+1Mb, 203Mb HD, Combi ethernet card	£120.00b
RPC 710, RISC OS 3.7, 16+1Mb, 203Mb HD, 10BaseT ethernet, Cumana CD drive	£150.00b
RPC 710, RISC OS 3.7, 16+1Mb, 203Mb HD, 10BaseT ethernet card, CD drive	£150.00b
RPC 710, RISC OS 3.7, 16+1Mb, 203Mb HD, Combi ethernet card, CD drive, PC card	£150.00b
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RPC SA, RISC OS 3.7, 20+1Mb, 203Mb HD, Combi ethernet card, CD drive	£300.00b
RPC SA, RISC OS 3.7, 20+1Mb, 203Mb HD, Combi ethernet card, CD drive, PC card	£300.00b
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RPC SA, RISC OS 3.7, 20+1Mb, 203Mb HD, Combi ethernet card, CD drive, PC card	£300.00b
RPC SA, RISC OS 3.7, 64+1Mb, 203Mb HD, 10BaseT ethernet card, CD drive	£310.00b
RPC SA, RISC OS 3.7, 12+1Mb, 2014Mb HD,Cumana CD,10BaseT ethernet, PC card	£320.00b
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Note from the Editor

Snatching defeat from the jaws of victory is a skill that the British have in great measure. Alongside the inability to market properly, sell well and generally do business with any degree of talent.

It seems to be something in the British nature, a general unwillingness to do anything so crude as to actually try to sell something to someone. Anyone who has the job of sales is regarded as a second-class citizen at best, usually more in the category of the scum of the earth.

This is probably why British-run companies in general (there are a few exceptions, of course) don't measure up in the scheme of things.

Selling is a skill and it is a critically important skill in business. It is so obvious that you wonder how anyone could possibly miss its importance: If you don't sell you don't make any money.

But then again making money is another of those things the British "reserve" seems to object to, it is crass and "low" to want to generate income.

Once you have established a company to produce something the next step is getting people to know of its existence (which is your PR and marketing) and then selling it. As has been mentioned in this editorial more than once simply having a good product does not get the world beating a path to your door.

Selling, may be a dirty trade, without it there is no commerce. There are problems with it, sometimes you get ripped off, when people lie about the quality of their goods and services. This can give sales a bad name, but that doesn't mean every sales person, product or service is bad. It just means you got ripped off that time.

Being a salesman is not generally considered a career path, however it is a skill. Sticking a hard disc under someone's nose and going "It's 50 quid do you want it or not?" and then blaming the customer if they choose not to buy is not selling. It is the route to business and personal failure. No competent sales person ever blames the customer for a failed sale.

Selling involves bringing the customer to a point where he or she sees how the product or service will be of benefit and then, gently and sensitively, doing the "exchange of cash" thing.

Speaking of sales, thank you for buying this new and improved issue of Acorn User. As you can see we have let our designers lose on the magazine and given it a facelift, editorially too we have given it a lift so take a good look and enjoy!

Editor
Rob Donaldson

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128MB	£31.49	£37.00	£34.04	£40.00
256MB	£58.72	£69.00		
512MB	£120.00	£141.00		
	Multi -	media	memory	card
32MB	£12.77	£15.00		
64MB	£22.98	£27.00		
128MB	£40.00	£47.00		

Readers for Smart media or Compact Flash inc RISCOS S/W
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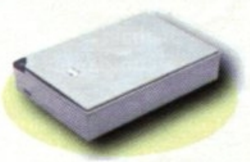
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ADSL / Router / 4 port Hub	£67.23	£79.00
IP sharer inc. Firewall & Hub	£67.23	£79.00
5 Port 10/100 Switching Hub	£21.28	£25.00
8 Port 10/100 Switching Hub	£2.00	£2.35
8 Port 10bT + 1x10b2 Hub	£35.00	£41.12
1 port printer server *	£75.00	£88.12
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Classic Acorn machine upgrades from A305 to A5000 / A4
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(3 yr warranty)

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15" LCD (3yr on-site)	£212.00	£249.10
17" LCD (3yr on-site)	£299.00	£351.32
18" LCD (3yr on-site)	£399.00	£468.83
19" LCD (3yr on-site)	£620.00	£728.50
15" SVGA 0.28 (3yr on-site)	£67.23	£79.00
15" SVGA 0.28 Multi-Media	£119.00	£139.83
17" SVGA 0.28 (3yr on-site)	£85.10	£99.99
19" SVGA 0.26 (3yr on-site)	£120.00	£141.00
21" SVGA 0.25 (3yr on-site)	£374.00	£439.45
17" Iiyama Vision Master (702)	£120.00	£141.00
17" Iiyama Pro (703UT)	£162.00	£190.35
19" Iiyama (902UT	£160.00	£188.00
19" Iiyama Pro (901U)	£217.00	£254.98
22" Iiyama 2010	£374.00	£439.45
Multisync A300/A3000 cable	£8.50	£9.99

All monitors inc 3 yrs wty unless specified

Refurb MONITORS

21" Iiyama Pro only £149 + Vat

	Ex VAT	Inc VAT
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AKF52/53 M/sync Svga/Pal	£65.00	£76.37
AKF60 14" SVGA	£25.00	£29.37
AKF65 M-Media 14" SVGA	£42.00	£49.35
15" M-Media (Sony Trinitron)	£60.00	£70.50
19" SVGA (Taxan Ergo)	£99.00	£116.32
21" SVGA (Iiyama,Taxan etc.)	£149.0	£175.08
Multisync A300/A3000 cable	£8.50	£9.99

All refurb. monitors 90 days wty unless specified

PRINTERS



Lasers may differ from one shown

Mega-Deal Kyocera 1550 only £69.00 inc. VAT

units are refurbished with 90 days wty
last few remaining

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Postscript colour Laser from	*A4*	*£1025.00*	*£1204.37*
Postscript B/W Laser	**A4**	***£225.00***	***£264.37***
Canon BJC S520 Photo €	A4	£85.10	£99.99
Canon BJC S750 Photo #	A4	£127.65	£149.99
# Photo Drivers for		£58.72	£69.00
€ Needs RiscOS Driver		£20.00	£23.50

3.5" IDE Hard Drives

	Ex VAT	Inc VAT
210Mb (refurb)	*£10.00*	*£11.75*
500MB / 1GB	***£30.00***	***£35.25***
10.2GB	£44.00	£51.70
20.0GB 5400 RPM	£46.81	£55.00
30.0GB 5400 RPM	£50.21	£59.00
40.0GB 5400 RPM	£64.00	£75.20
60.0GB 5400 RPM	£69.00	£81.08
80.0GB 7200 RPM	£77.00	£90.48
120 GB 7200 RPM	£100.00	£117.50

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1.0 Gb *limited supply*	£30.00	£35.25
2.0 Gb *limited supply*	£40.00	£47.00
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9.1Gb (10K rpm)	£60.00	£70.50
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36.7Gb (10K rpm)	£149.00	£175.08
73.4Gb (10K rpm)	£369.00	£433.57

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only £14.95 inc
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RPC Version
£58.95 inc.

Radio keyboard & mouse



£34.00 + VAT (£39.95)

MEMORY

	Ex VAT	Inc VAT
8Mb SIMM EDO/FPM	£6.49	£7.63
16Mb SIMM EDO/FPM	£12.00	£14.10
32Mb SIMM EDO/FPM	£17.00	£19.98
64Mb SIMM EDO/FPM	**£35.00**	**£41.12**
64Mb SIMM RS 50ns	**£45.00**	**£52.87**
128Mb SIMM from	£85.00	£99.87
1Mb VRAM	£20.00	£23.50
2Mb VRAM	£69.00	£81.08
128MB 133M SDRam	£12.77	£15.00
256MB 133M SDRam	£25.53	£30.00
512MB 133M SDRam	£47.66	£56.00

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BY MAIL or PHONE: Cheques or P.O.s should be made payable to 'CTA DIRECT'.
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BY EMAIL: **sales@ctadirect.co.uk**
OFFICIAL ORDERS by MAIL or FAX please
Carriage charges inc. ins. & packaging charged at cost
Small items (under 2Kg).....no more than £6 + vat
One box of items totalling upto 25kg...£7.00 + vat
Computer systems.................................£14 + vat
All prices are correct going to press. E&OE
All goods are fully guaranteed but not supplied on approval.

Storm in a tea-cup



In a surprise posting to the ARM Linux mailing list, Russell King, the key developer of ARM Linux, disclosed his belief that RISC OS 5 features code taken from the Linux kernel. His beliefs appeared to have come from ex-RISC OS Ltd programmer Justin Fletcher, who was examining disassembly from RISC OS 5 and spotted some familiar-looking function names embedded in the code. This provoked further investigation and Justin contacted Russell with his findings.

Castle had yet to comment on the allegations, and although it may just be a storm in a tea-cup, if it is proven that they have used code from Linux which is released under the GPL license within RISC OS 5 this could have implications for the Iyonix PC as Castle would need to re-write the code concerned to remove all Linux-based code from the RISC OS 5 sources. Updating existing machines should not be a problem given that RISC OS 5 is stored in easily updateable flash ROM.

The GPL licence is common among the "open source" community such as Linux although it has never been used in court as yet. It allows people to use and modify the source code, but everything they produce as a result must also be released as "open source", so you can see why the Linux community were up in arms when they heard this allegation. There were 100s of posts in a few hours on the popular Linux Web site **www.Slashdot.org** after they published Russell's accusations.

Meanwhile, Iyonix PC owners continue to gain the benefit of the continued development of RISC OS 5 by Castle developers, with the latest release being at 5.02 with improved USB printing and bug-fixes.

Just as we were going to press Castle Technology issued a response to the accusations which we have reproduced in full on the letters page.

Squeak Smalltalk updated

A new version of the Squeak Smalltalk system is now available at **http://sumeru.stanford.edu/tim** This latest version has many improvements to the virtual machine, not least of which is that it should be Iyonix compatible. It is also some 30% faster than the last release after extensive work on the handling of important internal globals.

The Squeak system itself has also had many improvements since v2.8 (see **www.squeak.org**). Perhaps the most interesting is the introduction of a package management system.

Aside from all the facilities expected in a fully integrated object-oriented programming environment such as Smalltalk (code browsers, object inspectors, debuggers, source management and so on) and associated libraries (advanced graphics 2D and 3D, UI widgets, network client and server capabilities) Squeak includes a number of neat applications such as a mail client and an IRC client for free.

Squeak runs on many platforms (RISC OS, Mac, OS/2, Windows, Unix, DOS, and various embedded systems) but identically, no recompiling is needed. You can copy a snapshot file from a Risc PC to a PowerMac and run it immediately.

PDF updated

The popular PDF reader from Colin Granville has been updated to v1.01.1.10 and can be downloaded from the author's Web site at **www.pdf.iconbar.com**

It has had the following changes:

- Wrong characters being displayed caused by Type1C fonts having a hex encoding has been fixed
- Problems with displaying outlines and RISC OS 3.7 fixed
- File info extended
- Document permissions honoured
- Stopped Wimp_MDataLoad intercepting text and data files
- Information text changed to PDFDocEncoding
- In outline window, Adjust click on boxed + and - open/close all entries below the click at the same level
- Tree lines added to outlines.
- The print dialogue box now remembers the 'All' setting
- The method of allocating Dynamic areas changed
- 'PDF limitations' and 'Dynamic Areas' sections added to help file.

RISCOS Ltd '5'

RISCOS Ltd celebrated the completion of its fourth year of business on 31st January 2003 and is now in its fifth year of trading.

Since the launch of RISC OS 4 in 1999 RISC OS Ltd have sold thousands of end user upgrades and there have been many more new computers sold with RISC OS 4 pre-installed. See **www.riscos.com**

PYRO Update 2

Artex have announced an update to TEK 1608 labelled "The PYRO Update 2" which can be downloaded for free from **www.artexsoft.com**

The Pyro 2 update fixes bugs that occurred on some computers. It also includes all features of the first Pyro update, which for those who haven't yet upgraded are the following:

- Enhanced missile system
- Enhanced laser system
- Wayfinder rewritten from scratch
- Artificial Intelligence improved
- Smooth 'fog of war'

Plus some other minor enhancements.

Drive the Officejet D145

A RISC OS driver is now available for

the printer section of the HP Officejet D145. The driver provides settings to allow either full colour or grey scale printing at both 300 and 600dpi. Specific settings are provided for a variety of media types and print qualities.

An appropriate icon bar symbol, which resembles the D145, is provided with driver. The D145 driver package also includes new palette files.

The driver has been tested and found to work reliably with RISC OS 4 plus Printers version 1.64 and RISC OS 3.7 plus Printers 1.54. Use with Printers version 1.53 may well be possible but is not guaranteed. Use with older versions of Printers is not possible.

Please note there are significant restrictions associated with using this device from RISC OS the most obvious being it does not include a parallel port as standard and so far attempts to print via USB have not been successful. The above driver was therefore developed in conjunction with a D145 which had its optional parallel port adaptor fitted.

For more information and pricing details please contact Jonathan Briggs via email, jbcb@globalnet.co.uk

Get yourself decoded

ARMalayser version 0.43 is now available from www.armclub.org.uk/free ARMalyser is an ARM code analyser that understands RISC OS executable, module, object and library formats. It can output disassembler or ObjAsm assembly styles, in plain text, fully hyperlinked and syntax coloured HTML, XML or custom formats for import into Impression, TechWriter and Ovation Pro.

It has extensive analysis features to detect problems that may be encountered when converting code to 32-bit, and the assembler output may be used as a basis to produce 32-bit versions of code where the sources are not available.

It is available for 26-bit and 32-bit RISC OS with a desktop front end, and command line versions for Win32, ARM and x86 Linux.

There have been many enhancements and fixes in this release which include:

• A processor target command line has been added for instruction display and performance analysis information.

• ARMv5 and ARMv5TE (XScale) instructions have been added.

• The architecture designation is displayed for ARMv3M or later instructions.

• Any RISC OS 4 fast service entries are shown as an address/link in the service table.

• MessageTrans menu structure display has been corrected.

• The "Conditional LDM/STM maybe slow" message has been removed from the cautions following feedback from users who described it as "annoying".

• Performance information is displayed when StrongARM or XScale specified as traget. Comments are prefixed with PERF and include:

* Conditional LDM/STM maybe slow

* Single register LDM/STM slower than LDR/STR

* Memory load-use latencies (StrongARM and XScale cycle counts)

* Result to barrel shifter latency (XScale)

* Multiplier and DSP unit result latencies (XScale)

This particular feature is in development at present, and the register latency calculations should only be taken as a rough guide. The current implementation assumes all following instructions have an issue latency of 1 cycle, and does not take into account blocking from as the result of previous latencies. Also writes to the same register from conditionally exclusive instructions are not taken into account unless the value of the results are known from the register emulation. This will be improved in later versions of ARMalyser.

32-bit impulse module

A 32-bit mode compatible version of the Impulse II module is now available from www.sinenomine.freeserve.co.uk software/#Impulse

Impulse II is an inter-process communication module, originally released by Computer Concepts, and supported by various applications such as Impact, Impression, Ovation Pro, PowerBase, NewsBase, and so on. The last known Computer Concepts release was version 0.18. This new version has the number 0.20 and has been tested on the Iyonix.

Computer Concepts released the module (without sources) into the public domain and the author is allowing this module to be copied and redistributed in the same way.

Beeb goes 32-bits

BeebIt is a freeware BBC Micro computer emulator for RISC OS versions 3.00 and above. It emulates the Acorn BBC Model B, BBC Model B+ and BBC Master 128 computers.

A small bug when writing to the sound module has been fixed but more importantly it has been made 26/32 bit compatible.

You can get the latest version from http://homepages.paradise.net.nz/mjfoot/ under the BBC link.

On the same site there is a selection of other classic BBC software which have now all been made 26/32 bit compatible. Thes include: Dare Devil Denis, Chuckie Egg, Guardian, Cybertron Mission, Dungeon Adventure and LedScroll. You can get these from the same site under the RISC OS link.

CVS Upgrade

CVS stands for "Concurrent Versions System" and is a version control system. Using it, you can record the history of your source files (for example source code of your programs or contents of your Web site). More information on CVS can be found at www.cvshome.org

The very latest CVS 1.11.5 client source code got ported to a 26-bit / 32-bit compatible RISC OS binary which can run on RISC OS 3.1 machines until the very latest RISC OS 5 machines.

User group meetings

The second LAUG (Liverpool Acorn User Group) meeting of 2003 will be held at the usual venue at Birkenhead Boys School, Bidston Road, Oxton, Wirral on 11.02.03. A directional map can be found at www.italia.co.uk/laug

The meetings will continue to be held on the 2nd Tuesday of each month. Dates for the 1st half of 2003 are therefore: 11th February, 11th March, 8th April, 13th May, 10th June.

Topics to be discussed this month will probably be anything computer related. As usual friends, family and colleagues are welcome to attend. The club can also act as a general help-group for those who attend. Refreshments are provided.

BARUG

26 March Iyonix presented by Jack Lillingston, MD Castle Technology Ltd

They meet at 7.30pm on the last Wednesday of the month (except for December) at the Brook Way Community Centre, Bradley Stoke, Bristol (just off Junction 15 on the M5). See www.barug.co.uk

Bottisham Acorn User Group

April 8th Tutorial: Risc PC Problem solving evening

April 22nd The 21st Annual General Meeting.

Wireless Networking

A Range of Wireless networking devices allowing RISC OS and PC machines to be networked without having to lay cables etc. All products comply with IEEE802.11b and interwork with other compliant systems.

Wireless USB adaptor: plugs into RISC OS machines fitted with Simtec USB card. Stack based on acclaimed NET100 code.

Wireless USB adaptor: £79.95. PC version (no RISC OS drivers) £69.95

Wireless Access Point / Bridge / Media Converter: This versatile device allows single machine or groups of machines fitted with network cards to be integrated into a wireless network.

Wireless Access Point / Bridge / Media Converter £99.95inc

Wireless PCMCIA Card: For use with Portable machines: £59.95inc

Wireless Broadband Router: Please ask for details

cordless (pictured) £29.95. PS2MouseMini interface required. Laser trackballs are should be taken not to look into the laser beam. Please observe warning labels etc.

In association with: www. **RISCOS-USB**.com



Simtec USB card

Provides USB expansion to RISC OS machines

£79 + del + VAT = £99.95inc
4 port hub £10 with card (£20 alone)



Epson 1660 scanner

USB scanning at true 3200x1600dpi

Scanner only £179.00
TWAIN and scanning software £35
SPECIAL OFFER: Scanner, USB card and FREE TWAIN and Scanning Software: £278



HP USB Printers

High quality printers which attach to the Simtec USB card.

HP3820 USB printer: £120inc
HP5550 USB printer: £170inc

Complete with RISC OS drivers.

COMING SOON with USB from STD
USB Pen drives; USB MP3 players;
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STD
Stuart Tyrrell Developments

Stuart Tyrrell Developments
PO Box 183, OLDHAM OL2 8FB
Tel: 0845 458 8803 / 01706 848 600
Fax: 0870 164 1604 (national rate)

Email: info@stdevel.co.uk
http://www.stdevel.co.uk
All prices include VAT and P&P
Switch/Visa/Mastercard welcomed.

Composition patch

A patch to version 1.22b is now available for Composition users at the author's Web site:
www.compo.iconbar.com
Please note that this patch can only be applied to a recent, full version of the program as purchased from Clares or APDL and is a beta version of the software. This version adds a number of small features requested by users and fixes several minor bugs.

More importantly it is now "26/32 bit neutral" and will use an alternative method of managing memory when run on new hardware. This version has been tested on a computer fitted with 512MB of memory.

The author requests any bug reports via e-mail and will endeavour to fix them ASAP. Please do not contact APDL or Clares regarding this beta version as it is not supported by them.

Those few users with 1.22a (or even an earlier 1.22b test) are advised to upgrade as a number of minor issues have since been dealt with.

Multi-lingual banking

The multi-currency accounts package for RISC OS, is now available from the RISC OS pages of the EnVision Software Web site:
www.envsoft.co.uk/riscos

New features include:

- 32/26 Bit neutral
- Import facility now supports Javascript V1.5 and adheres to ECMA-262 revision 3. Further information on javascript V1.5 can be found at **www.mozilla.org/js/**
- Fixed a problem when calculating memory growth requirements that could lead to dynamic areas been created with no upper limit on size. This could lead to exhaustion of dynamic area address space on systems with large amounts of memory.

Please note that !EnBank requires RISC OS 3.5 or later. The Basic home use version, that's a maximum of five accounts, ten standing orders and 500 transactions, is free.

Licence details and prices for an unrestricted base unit, multi-currency and Budget Analysis extensions are on the Web site. You can also check out !EnBank's full capabilities by requesting a free, no obligation, 60 day trial licence.

Contact :
EnVision Software:
www.envsoft.co.uk
Technical Support:
support@envsoft.co.uk

4D phone change

The Fourth Dimension phone number is changing with immediate effect from 01903 213361 to 01903 523222

The new number is the same as CJE's current number, so they are now on the same one. A long while ago (pre 1995) CJE also used the first number so it has been possible to get hold of them with it since then. Now it won't be so please update any database entries you may have.

The telephone number for both CJE Micro's and 'The Fourth Dimension' is now the same: 01903 523222 The fax number for both businesses remains as 01903 523679

Charity books

The books "Starting Basic" and "Dr Wimp's Surgery" (both by Ray Favre) are still available. Over 200 copies of each have been sold so far, generating over £2000 for charity. All excess of income over costs goes to charity.

Each is over 300 pages in A5 ring-bound format and each costs £16 inc. P&P and discs of which about £4 per book goes to charity.

"Starting Basic" assumes the reader knows nothing and takes him/her progressively through the learning curve. The book also forms a good reference manual for BBC Basic.

"Dr Wimp's Surgery" concentrates on using the freeware Dr Wimp package for Wimp-programming, but is also a very good introduction to general Wimp-programming in Basic. It assumes the reader is broadly familiar with Basic.

Cheques to Ray Favre at: 26 West Drayton Park Avenue, West Drayton, Middlesex UB7 7QA

Synchronised filing

A new directory synchronisation tool, DirSync, has become available. This is a program which compares two directories. The result is presented in a window where you can filter some type of differences, for example only different files, or only files that are newer in the source directory.

In the compare window are icons to manipulate the synchronise direction, and if they should be synchronised at all. Once you have changed these things to your satisfaction, you can press the "Synchronise" button and the synchronising will commence. It is also possible to start a file-difference viewer from the compare files.

DirSync is almost freeware, but not quite. You must send the author an e-mail that you're using DirSync if you decide to leave it on your hard disc.

You can download DirSync from **http://home.c2i.net/jjvdgeer/riscos.html**

ARM still in profit

ARM Ltd has announced that despite the downturn in the semiconductor and technology industries, they are still in profit. Their end of year accounts highlight the following:

Total revenues up 3% to £150.9 million (2001: £146.3 million). At constant exchange rates, total revenues up year on year by 7%. Licensing revenues up 8% to £83.0 million. Profit before taxation at £47.4 million (2001: £50.3 million) before restructuring costs of £2 million

Cash balance of £130.3 million at year end up from £121.7 million at end Q3 and £104.5 million at 31 December 2001.

Earnings per fully diluted share (pre restructuring costs) of 3.3 pence. Earnings per fully diluted share (post restructuring costs) of 3.1 pence (15.0 cents per ADS*) (2001: 3.3 pence and 14.5 cents respectively)

Fourth quarter ended 31 December 2002: Total revenues at £32.3 million (Q4 2001: £40.2 million), 3% lower than Q3 2002

Royalty revenues up 26% sequentially to £7.8 million (Q3 2002: £6.2 million) on record quarterly unit shipments of 127 million. 13 licenses signed in the quarter. Number of semiconductor partners increases to 108

Profit before taxation at £7.5 million (Q4 2001:£13.8 million) before restructuring costs of £2 million

Net cash inflow from operating activities of £15.8 million in Q4. Net cash up by £8.6 million in the quarter after £2 million outflow on restructuring costs and £1.5 million investment in Superscape PLC.

Commenting on the fourth quarter and full year results, Sir Robin Saxby, Chairman, said: "Although, following our Q3 results, we adjusted our medium term revenue expectations and implemented cost base reduction, our competitive position in the intellectual property licensing business has strengthened and the long term prospects for ARM continue on a positive trend. It is encouraging to see that the momentum behind our business has given rise to an increase

in royalty revenues in the fourth quarter."

Warren East, Chief Executive Officer, added: "Despite the difficulties presented by tough industry conditions, our team has responded well to the operational challenges in the quarter. The ARM1136J-S™ product was successfully delivered to lead partners as planned, the reduction in the workforce was managed sensitively and efficiently and the sales team closed a number of important strategic license deals.

"We expect the exact timing of signing of license deals to continue to be hard to predict, and in view of this our guidance on revenues in the short term continues to be flattish. As and when the market recovers we have the opportunity to increase our R & D spend further."

Robin Saxby is due to speak at an IEEE presentation and dinner later this month, and your dutiful news editor hopes to attend and report back in the next issue.

Stan Boland moves on

Stan Boland, who turned Acorn Computers into Element 14 has formed a new start-up; a fab-less chip company "Icera" who claim to have made a "breakthrough" in developing a new class of processor for wireless terminal devices.

Boland, who is believed to be behind the eventual demise and sell-off of Acorn to Pace subsequently moved with E14 when he sold it to Broadcom Corp. for $600 million. He is president and chief executive officer of Icera.

Five experienced engineers and executives, including former Broadcom staff and the past managing director of Altera in Europe have received $10 million for their new venture. It is not known whether these include Sophie Wilson, one of the original Acorn pioneers and author of BBC BASIC, who also moved to Broadcom as part of the Element 14 deal.

The company, Icera Semiconductor Ltd., was formed in April 2002 by Stan Boland and Simon Knowles, previously of Element 14, and Nigel Toon, previously vice president and managing director Europe for Altera Corp.

The company expects to create a chip design team in the Bristol area in the west of England over the next several months.

Icera's investors are Atlas Venture and Benchmark Capital. Atlas contributed to the formation of Element 14 and is likely to have been amply rewarded for its risk-taking when Element 14 was sold to Broadcom.

Elevator to the Moon?

A carbon nanotube space-elevator is now possible. The meter-wide "ribbon" would start on a mobile ocean platform at the equator, west of Ecuador, and extend 62,000 miles up into space. Nanotubes are essentially sheets of graphite -- a lattice of carbon -- seamlessly rolled into long tubes that are mere nanometers in diameter. These are 100 times as strong as steel, but much lighter.

A large elevator would be attached to the nanotube to transport materials into the cosmos. Costs would be about $100 a kilogram. The shuttle costs $10,000 to $40,000 per kilogram. The project could become a reality as soon as 15 years from now and is expected to cost $10 billion

Penguins in space

NASA's spacecraft and satellites could soon have their own Net address. The U.S. space agency is working on a project to make it easier to retrieve data from spacecraft and satellites in orbit or deep space and is turning to Net data protocols to help. The project will allow mission scientists to use a standard Web browser to monitor spacecraft and to swap data with them or their crew. The big technical challenge was how to maintain contact with the Net as the spacecraft orbits the world. Nasa is using Red Hat Linux for the project.

Internet on Everest

An Internet cafe is due to be opened by the grandson of Sherpa Tensing on Mount Everest. Tsering Gyaltsen Sherpa will open the cafe at the Khumbu glacier at 5,300 meters to allow climbers to access the Web. Expeditions, which cost almost $70,000 on average, are expected to pay $1,000 to use the transmitter. The money will go towards purchasing equipment for the Sagarmatha Pollution Control Committee, a team that annually clears Mount Everest of the trash that climbers leave behind.



More data power

R-Comp has announced that it has taken on the development, sales and support of Iota's famous Datapower 2 database, and their Image Outliner.

The deal covers the RISC OS versions of DataPower (the PC/Mac versions being under different arrangements), however compatibility with the other platform versions will be maintained.

Initially both versions of Datapower (2 and, hopeful,ly 1 as well) will be converted to 32-bit available as an upgrade to existing users, so they can buy into an "R-Comp Supported" release.

Datapower 2, it is generally acknowledged as the leading database for RISC OS, with full relational capability, SQL queries and scripting. It offers extensive control over "reporting" allowing the user to tailor the appearance of the output with DTP-like WYSIWYG control.

Image Outliner allows sprites (scans) to be converted to draw files, for better use in DTP.

DataPower 2 for RISC OS, complete with extensive manual, now retails for £125, inclusive of VAT and carriage, for a single user, the Iota selling price was £149 without VAT). Stocks of manuals are very limited. Image Outliner is available for £17.50 (original RRP was £49).

R-Comp: 22 Robert Moffat, High Legh, Knutsford, Cheshire WA16 6PS Tel: (+44) 01925 755043 Fax: (+44) 01925 757377 www.rcomp.co.uk

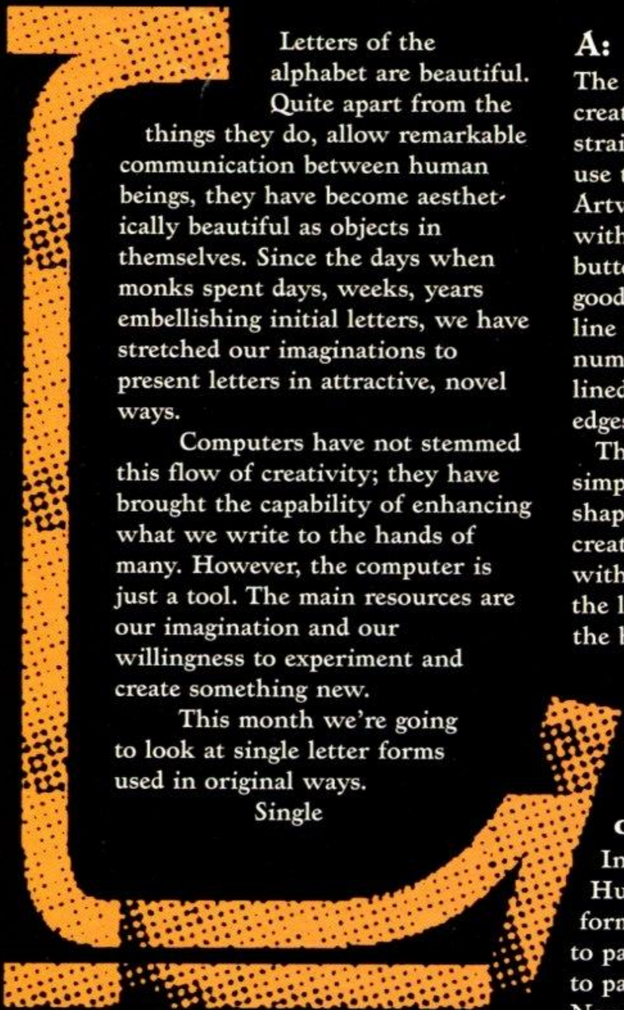
Really good 32-Bit software

The Really Good Software Company has announced that its selection of Primary education software, Picture Book 2, and their professional presenter package, NoticeBoard have both been upgraded to 32-bit. The Artworks file drawing code in both packages has been upgraded so that it works with the new Artworks rendering modules recently released by Martin Wuerthner.

In addition NoticeBoard has had a minor fix corrected which previously prevented it working with the VirtualAcorn. The combination of NoticeBoard on a PC portable running VirtualAcorn makes a very impressive and effective presentation system.

RGSC: 8 Hawthorne Close, Harpenden, Herts AL5 1HN. Tel: 01582 761395. sales.rgsc@argonet.co.uk

Quick recipes for single letters



Letters of the alphabet are beautiful. Quite apart from the things they do, allow remarkable communication between human beings, they have become aesthetically beautiful as objects in themselves. Since the days when monks spent days, weeks, years embellishing initial letters, we have stretched our imaginations to present letters in attractive, novel ways.

Computers have not stemmed this flow of creativity; they have brought the capability of enhancing what we write to the hands of many. However, the computer is just a tool. The main resources are our imagination and our willingness to experiment and create something new.

This month we're going to look at single letter forms used in original ways. Single letters can be used as "drop caps", larger letters signifying the start of a paragraph, for example, or even as part of a logo device or trademark.

In all of the examples, there are five basic treatments:

- Embellishing, where I have added a decorative device;
- Reversing out, where the letter is revealed against a stronger background;
- Manipulating, where I have altered the shape of the letter in one way or another;
- Enclosing, where the letter is enclosed within a rectangle, or other shape; and
- Objectifying, where the letterform is made up of other objects.

Some of the letters use more than one of these treatments, but we're going to take a detailed look at each letter in turn.

Use the full battery of your font collection, or at least a good selection of different font types.



A: Reversed out

The background was created by drawing a straight line (in Draw use the grid; in Artworks restrain with the Control button) and setting a good thickness. The line is copied a number of times and lined up so that the edges are straight.

The letter A is a simple, bold geometric shape, which could be created by drawing with the mouse. Fill the letter with white and place over the background pattern. Adjust the size of the letter to fill most of the height of the background pattern.

B: Enclosed/Reversed out

In this design I have used the font Hull in its Bold form and its Light form. Start off with Bold and convert to path (in Draw, go to Select-Convert to path; in Artworks, press Ctrl + N). Now get rid of the two "holes" in the middle of the B by deleting each bezier point until they're gone. Create another B, slightly smaller and in Hull Light; fill it with white and place it over the first B.

C: Reversed out

The background is simply an oval which has been rotated 45 degrees. The C, which can be any font you choose, is filled with white and laid over the oval. Adjust the size of the letterform so that it extends beyond the edges of the oval.

D: Reversed out/Enclosed

The font that was chosen had an overall oval shape, and it fitted nicely into a simple oval shape. Again, it's been filled with white, but it could just as easily have been any other colour, play around, see what looks good.

E: Embellished

We've used a standard, elegant font for our E. In order to raise it above the ordinary and give it a touch of class, we've added a white diamond shaped motif repeated up the central stem of the letterform. To create the diamond, draw a square and rotate it 45 degrees; resize to suit.

F: Reversed out

The F is in Corpus Bold, reversed out of a shape designed to suggest a scribbled felt-pen shape behind it. A long rectangle was created first, with the ends manipulated so that they're at an angle. The shape was then rotated and copied several times. The resulting shapes were slotted together, then each one adjusted to various sizes over the white F.

G: Enclosed

Once again we have a letter which is essentially oval in shape, this time taller than wider. It is first enclosed within an ovoid shape similar to its overall shape, then a larger oval created outside it.

H: Manipulated

Something that can be a lot of fun is making up your own designs for letters. Simply use your favourite drawing tool, use straight lines and draw out the form of the letter. Imagine you're cutting it out of a piece of paper with scissors, only with an application such as Draw, you can change your mind if you don't like it, move a line here and there.

Next month we'll continue looking at quick, simple recipes for creating exciting letterforms. Who knows, you might catch the bug.

Printers re-united

Using UniPrint you can print from RISC OS over a network to a Windows printer making full use of the printer's features and capabilities and thus getting high-quality printouts since good printer drivers are always available for Windows.

The trick UniPrint employs is pretty simple and cunning: The RISC OS printer driver outputs the data as a sprite (that is as a bitmap graphic) and transfers this sprite to the Windows computer. On that the UniPrint.exe takes over and prints the bitmap making use of all features of the Windows printer driver.

This avoids any problems with conversion of RISC OS formats or fonts. All you have to do is to make sure that the printer settings on Windows are correct and that the printing resolution in Printers on RISC OS for UniPrint are set sensibly.

Installation

You get UniPrint on a single floppy disc in DOS format. The reason for that is that you'll find UniPrint.exe for Windows on that floppy next to the RISC OS parts. The latter are in a zip archive to make sure that the file types as well as the case of the file names are not lost.

Windows installation is simple: Copy UniPrint.exe into a directory of your choice on the hard disc and run it. You can add a link to UniPrint.exe to the autostart folder so that it will be run whenever Windows is booted; UniPrint's manual describes this well.

As for RISC OS you unpack the zip archive and then run the installation application. This will copy the setup application for UniPrint as well as the printer definition file next to Printers (Printers doesn't have to be in the default directory "Printers"; it is located using its system variables). Furthermore the PDumper module PDumperUP is installed in Printers.

The next step is to run Printers and to drop the new printer definition file on to it to install the UniPrint driver.

Now you can set the connection using the dialogue box of Printers. This is done much easier by quitting printers and then using the UniPrint setup application.

The manual is just eight A5 pages but that is definitely enough. It describes the installation as well as how to use UniPrint and understanding it is no problem. Furthermore the manual covers the issue of which resolution you should use and why.

First try

The printer I use is a HP DeskJet 890C which is connected to my SMC Barricade Router used as a print server. Thus I was able to print to this printer from Windows as well as from RISC OS (using the Network Printer Tools lprPrint from R-Comp). Now I use UniPrint as well, printing from RISC OS over Windows. The advantage of my setup is that I can print onto the printer directly from RISC OS as well as with UniPrint.

After installing and configuring UniPrint on my Risc PC as well as my Iyonix PC I printed a file via UniPrint with a bit of text using Impression Publisher/Fireworkz that worked immediately. Even for simple text if you take a close look you can see a difference: Using the RISC OS printer definition file for the HP DeskJet the text printout is usable, but with UniPrint it is good.

Real test

UniPrint offers better text printing quality than the RISC OS printer definition files for HP printers but usually text quality is not the issue. So I went for a harder test. For that I created an ArtWorks image with a linear blended object and another with a circular blend from 10% to 70% black.

In Printers I set the quality for the HP printer (that is the one based on the HP DeskJet printer definition file) to optimum, whatever that means. I set UniPrint to 600 dpi and the Windows printer to optimal quality on normal paper (since I use that kind of paper).

In order to get quality colour printouts until now I had to print to a PostScript file on RISC OS (using the PostScript Level 2 driver which offers colour). Then I converted this file to PDF using GhostScript and the front end ps2pdf. The PDF file is then copied over the network to the Windows computer and printed using Acrobat Reader there. As you can see it is a bit of work to get a quality colour print but the result was worth the effort.

Using UniPrint you can get that printout much easier: All you have to do is to print to UniPrint and the quality is even a bit better than using PostScript-GhostScript-Acrobat Reader.

Photo print

Apart from printing text, ArtWorks images and the like printing photos is something needed more and more. Well, photos are bitmaps so basically you could always send them via network to the Windows computer and print them there to get whatever quality your printer offers. But as soon as you want to include the photos in say Ovation Pro documents or ArtWorks files to be able to add some text or the like, it's not a simple bitmap anymore.

No worries for this if you have UniPrint; just don't forget to configure the printer to the quality you want and go ahead and print your images, wait a moment and pick up a high quality printout on glossy photo paper. Furthermore no conversion for the Photo to a format usable on your Windows PC is necessary.

Resolution

Since the resolution settings in UniPrint are pretty important the manual goes into this quite a bit. You can simply set the resolution to the maximum the printer offers to be on the safe side. That is definitively not recommended. Take an A4 page for example which is some 11.5 by 8 inches. With 300 dpi (dots per inch) in black and white (that is one bit per pixel) you'd get a sprite of slightly less than 1 MB to transfer, sounds harmless.

But when you use greyscale the size is increased by factor eight; increasing the resolution to 600 dpi quadruples the size. An A4 page in 600 dpi and true colour is some 95 MB (8x11.5 inches, 600x600 dpi, three bytes per pixel). In this case printing will take some time since these masses of data

FIGURE I

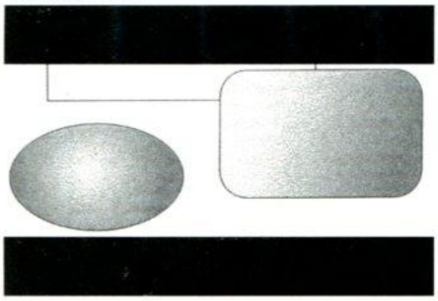


FIGURE II

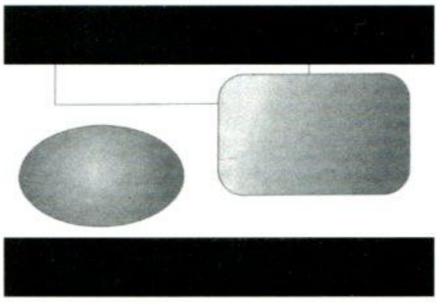
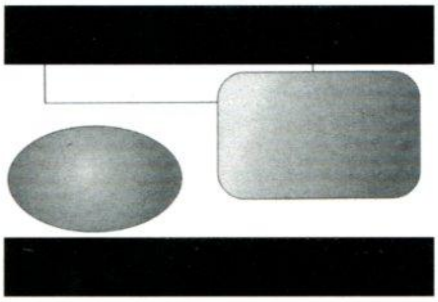


FIGURE III



Product:	UniPrint 1.20 Universal RISC OS printer driver (using Windows)		
Price:	£40 plus VAT		
Supplier:	R-Comp	Address:	22 Robert Moffat
Tel:	01925 755043		High Leigh
Fax:	01925 757377		Knutsford
E-mail:	rcomp@rcomp.co.uk		Cheshire
Web:	www.rcomp.co.uk		WA16 6PS

Comparing printouts

Here are the scanned printouts of my test image. It shows part of an empty rectangle, a rectangle with rounded corners filled with a linear blend and an ellipsis with a circular blend.

At the top the printout using the HP DeskJet printer definition file printed from RISC OS directly (using lprPrint). The blends are pretty coarse.

In the middle the much better print quality I achieved by printing to a PostScript file, which is then converted to PDF using GhostScript and finally printed on Windows with Acrobat Reader. This printout is a bit smaller since I set Acrobat Reader to automatically reduce the page size to the printable area.

At the bottom the printout form UniPrint. As you can see the round corners are smooth (no steps) and the thin lines more crisp, I do hope that you see this in the printed magazine, I can see it clearly on my print.

have to be created, transferred over the network and finally printed. Fortunately as of UniPrint 1.10 the sprite compressed for the transfer to the Windows system giving a significant speed increase.

In UniPrint you should set a resolution the Windows printer offers to avoid interpolation and rescaling since that usually reduces the quality. And you'll gain nothing by printing a low-resolution bitmap with 600 dpi; all you get is a bigger print file but no more detail.

As for text printing it is a good idea to set UniPrint to grey scale to reduce the amount data (one byte per pixel instead of three). During my tests I saw that with 300 dpi and the Windows printer set to draft or normal quality you get decent printouts, better than using the HP printer definition file for RISC OS, and printing is pretty quick.

Since it is no fun to amend settings I recommend installing the printer in Windows twice, once for draft and once for optimal print quality. In RISC OS you should then install the UniPrint printer definition file twice too and give these the according settings. You can even add UniPrint a third time for greyscale text printing. Now changing the settings requires just a mouse click.

Is it worth it

If you need a good simple-to-use solution to be able to print in really good quality on an inkjet printer (or a cheap Windows GDI laser printer) from RISC OS and you have a Windows PC at hand UniPrint is certainly a good solution. Sure you can plug the printer into your RISC OS system but will then need to buy a printer driver which will cost you (and for the next printer probably another one or an upgrade), or live with the low quality.

I think the best setup is one like the one I had for my tests: If the inkjet printer in question is reachable via network I can use it with lprPrint without needing the Windows computer for simple RISC OS prints. If quality is needed I get it at ease using UniPrint assuming the settings to be correct and the printer being capable of quality printouts.

Conclusion

True, £40 for "just" a printer driver doesn't seem cheap but it is a universal solution and you won't need an upgrade if you buy a different (or an additional) printer. The other RISC OS printer drivers create the print data themselves and are thus usable for a few printers only and you never know if they really make best use of your printer since the printer manufacturers usually don't tell anybody how to really control the printer. And you can even buy a cheap Windows GDI printer and use it for RISC OS thus saving money.

On the other hand UniPrint needs a bit additional hardware: You need a Windows PC which has to be networked with your RISC OS system, but that set-up is pretty common now.

Summing up

UniPrint does what it claims to be able to do and is a very helpful tool, in short: recommended. It makes sense to use RISC OS to create images. I know that ArtWorks can create stunning colour blends; as far as I know no program for PC or Mac achieves the same quality, at least not for circular blends.

Herbert zur Nedden
HzN@HQ.gag.de

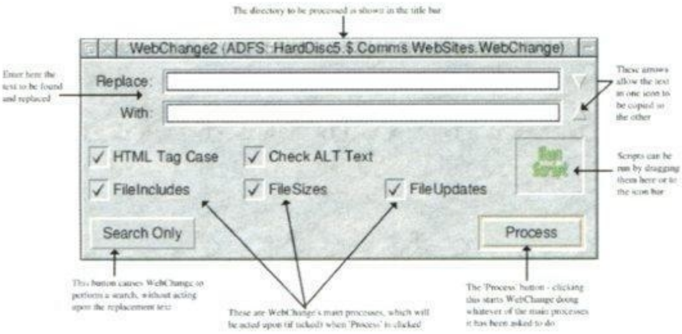
Editor and publisher of the German RISC OS magazine GAG-News, www.gag.de

WebChange

The website maintainer's tool

WebChange is an application designed to help with the maintenance of websites, and is particularly suitable for those who prefer to modify their HTML by hand in a text editor, giving them full control of the HTML itself, rather than just the layout and content.

The software provides the user with a number of functions designed to simplify those tasks which might otherwise be repetitive in nature, such as changing a simple item of text on every page - but that very simple example is merely the tip of the iceberg.



Although designed for use with HTML, many of **WebChange**'s facilities are not limited to that format and can be made to work with other file types - the main requirement is only that they be textual in nature. For example, the program has been used to modify its own sources.

Some of WebChange's features:

- **Search and Replace**
- **Tag Case Conversion**
- **Newline Conversion**
- **File Date References**
- **File Size References**
- **File Inclusion**
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- **ALT Text Insertion**
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See also http://www.softrock.co.uk for other goodies, including a selective cache clearing utility for the Fresco web browser, and a program for adding random taglines to usenet posts.

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Wireless Networking

Back in the 70s and 80s home stereo Hi-Fi systems introduced us to "spaghetti out the back". The endless wires, to and from speakers, cassette decks, amplifiers and turntables. They eventually got their act together and made the systems "all in one" reducing the number of wires.

The personal computer now seems to have taken over the old Hi-Fi role. Just think of all those peripheral devices and networking cables filling your plate with a plastic-coated delicacy. Possibly the greatest sinner is the network card and hub. Even with trunking, the length of cabling used to connect computers together can make your office or house seem more like a telephone exchange than a working environment, and the nightmare of hooking up machines that are rooms apart soon result in major DIY with the drill. Is there a solution to this chaos? Enter stage left the "wireless solution".

Wireless networking technology operates via a series of cards and hubs that broadcast radio signals. It is totally flexible and adaptable within standard network practices. So no matter where the machines are situated within the office or home you can connect to the network, making networking extremely easy, and making the physical movement of machines to different locations so much easier. So for example moving a laptop to another room will not remove it from the network.

You can operate a peer-to-peer network where each computer can communicate directly with every other computer on the network or you can set-up up a client/server network though this must have an access point, which is a wired controller that receives and transmits data to the wireless adapters installed in each computer.

There are currently four types of wireless networks, the basic rule being that the more you pay the faster it goes. These are Bluetooth, IrDA, HomeRF (Swap) and WECA (Wi-Fi).

Bluetooth although currently available with some mobile handsets and peripherals (like mice and keyboards) is not widely available and is more concerned with connectivity than the high-speed transfer of large amounts of data.

IrDA (Infrared Data Association) is a standard for devices to communicate using infrared light pulses. This is how remote controls operate. Since IrDA devices use infra-red light, they depend on being in direct line of sight with each other. Although you can purchase and install an IrDA-based network capable of transmitting data at speeds up to 4 megabits per second (Mbps), the requirement for line of sight means that you would need an access point in each room, limiting the usefulness of an IrDA network in a typical home or office layout.

Before we talk about SWAP and Wi-Fi, we need to understand the original standard that both of these new specifications are based on. The original Institute of Electrical and Electronics Engineers wireless-Ethernet specification, known as IEEE 802.11, designated two ways of communicating between devices and allowed for speeds up to 2 Mbps. Both communication methods, direct-sequence spread spectrum (DSSS) and frequency hopping spread spectrum (FHSS), use the frequency-shift keying (FSK) technology. Both are also based on spread-spectrum radio waves in the 2.4-gigahertz (GHz) range.

Spread spectrum simply means that data is sent in small pieces over a number of the discrete frequencies available for use at any time in the specified range. Devices using direct-sequence spread spectrum (DSSS) communicate by splitting each byte of data into several parts and sending them concurrently on different frequencies.

DSSS uses a lot of the available bandwidth, about 22 megahertz (MHz). Devices using frequency-hopping spread spectrum (FHSS) send a short burst of data, shift frequencies (hop) and then send another short burst. Since the FHSS devices that are communicating agree on which frequencies to hop to, and use each frequency for a brief period of time (less than 400 milliseconds) before moving on, several independent FHSS networks can exist in the same physical area without interfering with each other.

Also, due to FCC restrictions, as well as the fact that FHSS devices generally send data on just two to four frequencies simultaneously, they only use 1 MHz or less of the available bandwidth. Because they use any given frequency for such a short time, FHSS devices are less prone to interference than DSSS devices. But DSSS is capable of much greater speed than FHSS since these devices can send a lot more data at the same time. Currently, FHSS-based devices are easier and cheaper to produce.

HomeRF and SWAP

HomeRF (RF stands for radio frequency) is an alliance of businesses that have developed a standard called Shared Wireless Access Protocol (SWAP). A sort of hybrid standard, SWAP includes six voice channels based on the Digital Enhanced Cordless Telecommunications (DECT) standard and the 802.11 wireless-Ethernet specifications for data. SWAP devices make 50 hops per second and transmit at 1 Mbps.

Depending on the manufacturer, some of these can step up to 2 Mbps if there is very little interference in their operational area.

Here are the advantages of SWAP:

•Inexpensive (£45 to £140 per device)

•Easy to install

•Requires no additional wires

•No access point

•Uses six full-duplex voice channels and one data channel

•Allows up to 127 devices per network

•Allows multiple networks in the same location

•You can use encryption to make your data secure

Here are the disadvantages of SWAP:

•Not very fast (normally 1 Mbps)

•Limited range (75 to 125 ft / 23 to 38 m)

•Not compatible with FHSS devices

•Physical obstructions (walls, large metal objects) can interfere with communication

•Difficult to integrate into existing wired networks

In most cases, SWAP-based networks are point-to-point. Some manufacturers do offer access points as an option to increase the effective range of the wireless network, but they are not required equipment. Mainly because of this lack of an access point, HomeRF networks are significantly cheaper than the other viable wireless network, WECA's Wi-Fi. But the tradeoffs for cost are speed and distance.

If you can set up a wired network using HomePNA or traditional Ethernet, you will get 10 to 100 times the speed for the same amount of money or less. However, unless you plan to send large amounts of data (like video) back and forth, SWAP speed is probably adequate for most home use, and the freedom of no wires can be quite appealing. Though think on with Internet connections pushing past 1Mbs this technology will date quickly, and currently because of the need to use dedicated cards, only computers can participate in a SWAP network. Printers and other peripheral devices need to be physically connected to a computer and shared as a resource by that computer.

WECA and Wi-Fi

The Wireless Ethernet Compatibility Alliance (WECA) has gone in a completely different direction from HomeRF. Targeted more at office use than home networks, Wi-Fi (for "wireless fidelity", like Hi-Fi for "high fidelity" in audio equipment) is essentially a seal of approval that says the manufacturer's product is compliant with a variation of the IEEE 802.11 specification known as IEEE 802.11b.

This specification drops FHSS and focuses on DSSS because of the higher data rate it can attain. Under 802.11b, devices communicate at a speed of 11Mbps whenever possible. If signal strength or interference is disrupting data, the devices will drop back to 5.5Mbps, then 2 Mbps and finally down to 1 Mbps. Though it may occasionally slow down, this keeps the network stable and very reliable.

Here are the advantages of Wi-Fi:

•Fast (11 Mbps)

•Reliable

•Long range (1,000 ft / 305 m in open areas, 250 to 400 ft / 76 to 122 m in closed areas)

•Easily integrated into existing wired-Ethernet networks

•Compatible with original 802.11 DSSS devices

Here are the disadvantages:

•More expensive. (Though prices are falling)

•Can be difficult to set up. (Though as the home user uptake increases companies are making the product much more user friendly)

•Speed can fluctuate significantly.

Wi-Fi offers Ethernet speeds without the wires, but you pay for it. There are Wi-Fi compatible PC cards that operate in peer-to-peer mode, but Wi-Fi usually requires access points, which range in cost from about £150 to £1000. Most access points have an integrated Ethernet controller to connect to an existing wired-Ethernet network. It also has an omni-directional antenna to receive the data transmitted by the wireless transceivers

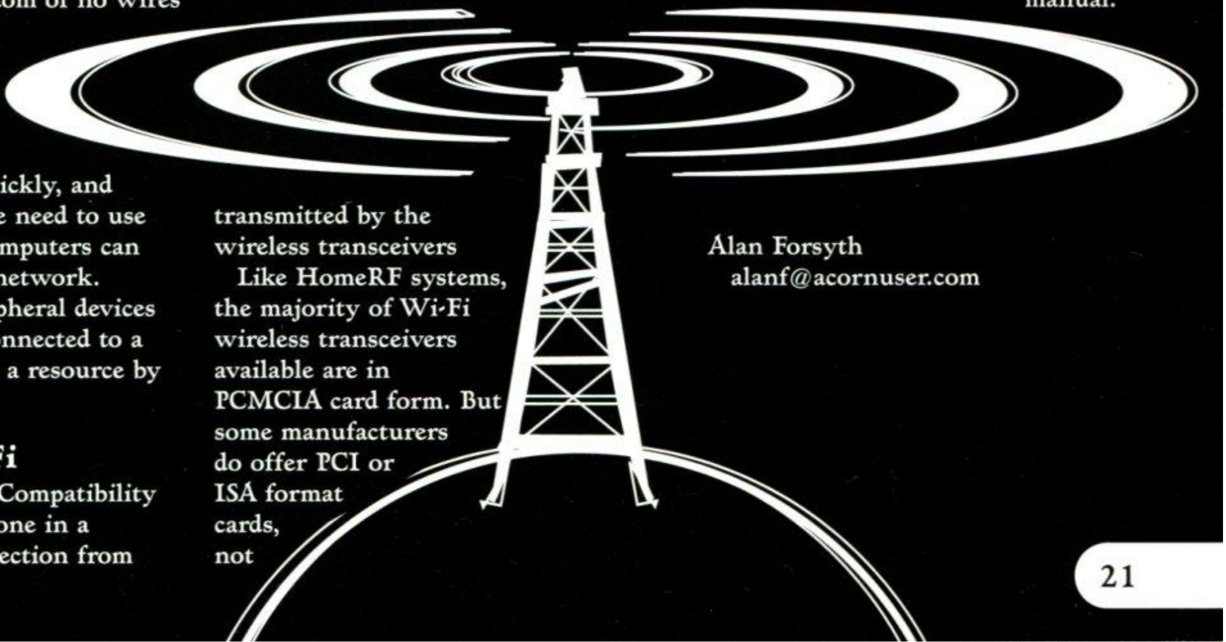
Like HomeRF systems, the majority of Wi-Fi wireless transceivers available are in PCMCIA card form. But some manufacturers do offer PCI or ISA format cards, not just adapters.

The cost per card ranges from £50 to more than £250. Having said that the increase numbers of people wanting the range and speed of Wi-Fi has recently seen an increase in availability of Wi-Fi components, and a decrease in price. Yet another example of †if itÜs good enough for the office itÜs good for the home"

So what form does the equipment take? The actual wireless transceiver, with a small, integrated antenna, is built into an ISA, PCI, or PCMCIA card. You can also get USB adapted devices. These plug into the appropriate slot in your computer. For the RISC OS-based system the wireless USB adaptor plugs into the machine via a USB expansion card.

The device can work "peer-to-peer" with other devices in "ad-hoc" mode, or using an access point in "infrastructure" mode allowing data transfer rate of up to 11Mbps, tied to the speed of the USB connection. For pricing and information go to **www.stdevel.co.uk** Access or bridge points can also be set-up to increase signal range and/or allow Client-Server setup. Wireless routers are also available and a must for people with high speed broadband who want to connect multiple systems to the Internet at the same time.

With the recent reduction in price and greater range and speed in Wi-Fi technology it looks that this is currently the way forward. Though as with all things there is always something new on the horizon. Whatever you choose for your home or corporate network, the ability to set-up a network without the DIY/drill factor has got to be a major plus. Just remember that this is still a developing technology. Now where is my system networking set-up up manual.



Alan Forsyth
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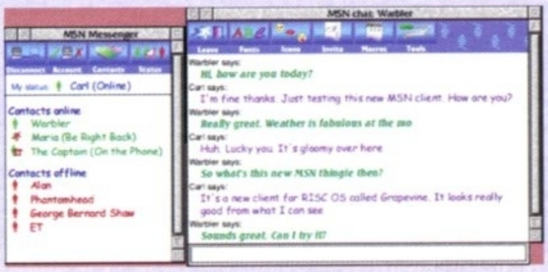
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The Making of a Web site

In the last issue we did an overview of what applications were being used in the creation of three basic Web sites: a personal Web site with a reasonable amount of space (about 5Mb) with no extras; a commercial but not e-commerce Web site in the form of the Acorn User site; and finally a commercial Web site.

We also had a look at some of the features that could be incorporated in order to make these sites work better, now I want to look at some of the practical applications used to keep these sites maintained.

As a little anecdote before we get started, we all know how Microsoft (and others) like to write huge applications that hide the core of the Web from those people who create Web sites. Which results in monolithic sites that don't like non-Microsoft browsers visiting and for practical purposes we, with our RISC OS browsers have to have them set to pretend to be Microsoft ones.

Some also like to insist that hardcore HTML (which isn't really that hard, PHP though, that's real programming) is difficult. Well I felt it was about time my daughter put her own words on to her part of the family Web site. I sat her down in front of the folder of HTML files and Zap's HTML mode. Gave her some brief instructions (don't touch the code at the top or the bottom, put your text in here, use this code before each paragraph and these for headers).

Then I went away. I came back to find that not only had she edited all the files successfully but she had figured out how to do bullet lists, different styles and was well on the way to modifying the rest of the site. I put a stop to that. Now with so many different types of computer in the house we don't know what to do with them all I acknowledge that she isn't computer illiterate, but raw HTML hard? I don't think so.

Getting it up there

Last month I looked at using Softrock Software's excellent WebChange (www.webchange.co.uk) program to make global server-side changes to files. This is a great application and has far more versatility than I actually suggested last month, however there just isn't the space to go into it here.

Anyway once you have your Web site built locally and you have used your combination of WebJames plus your Web browser to thoroughly test it is time to get it up on to the Internet so that others can browse through its pages and enjoy your prose and pictures.

The first program you will need is FTPc by Colin Granville. This is basically just a program that allows you to access FTP sites using the Internet's file transfer protocol. You enter the various access information needed: the site address; the directory you need to go into; your user name and password and account. The rest of the information is not generally needed.

Click connect (once you are online) and you can access the sites. FTP used to be a very popular protocol on the Internet but now it has degenerated to mainly being the way that you upload Web pages to the site.

Your ISP will have provided you with the necessary access information in order to get through to the location where you put your pages. You can use FTPc to access that location. You can set it up to save all your access information so that you don't have to type it in freshly each time.

Once it is operational FTPc provides you with a window on to a directory on the FTP site which you can then drop your pages one by one on to.

This works fine but as a site becomes more complex you can get to the stage where you forget which files have been updated so end up either comparing them carefully to check it out or uploading the entire site again.

If you have ADSL or some other form of broadband this may not be too bad but most of us are still on boring old dial-up (and some of us may never have the opportunity to try ADSL at home as we live too far out in the sticks).

Regardless of your access type it is still better to use a clever little piece of software that makes the process of updating a site much much easier and that software is called: SiteMatch.

What SiteMatch does is keep a record of all the files in your Web site (it can deal with multiple Web sites) and when it is run it checks to see whether any files have been added, modified or deleted. The deleted question is a very important one especially if you are trying to manually update a site. It's very easy to miss that you are supposed to delete a file from the FTP site.

Anyway SiteMatch does this check and then, when instructed, it interfaces with FTPc and gives it a series of instructions that, when followed, copy any new or modified files from the home, source version, up to the FTP site and deletes any files that no longer exist on the original site from the FTP site, all automatically.

My only complaint with it is that it uses a standard error box to ask you if you really want to update the local file once the transfers have been made. Personally I don't even want to be asked because I can't see why you would ever not want to. Anyway that's just me.

Server problems

One pitfall that I fell into good and proper on my commercial poetry Web site is definitely one to beware of, and it is one that we are actually quite familiar with on a smaller scale on every hard disc that we used.

It is possible to run out of allocated disk space on the ISP's server even though you apparently haven't: I uploaded about 60 poems to the server.

Next time I came to try to alter or upload I found that my files were being sent to zero length. It was a weird situation. I would want it to upload, say, three files, the first two

would be fine but the last one would be zero length.

I can't deny that this caused something of a panic, I had an active site which people were visiting and important files were getting wiped. Basically the site became useless. I thought it might be because I had used too much server space though I didn't see how, a "count" on the home version of the site revealed only about 128K was being used.

Frantic e-mails to the ISP followed eventually the cause was revealed, it was true I had overstepped my 1Mb boundary. How? It was the same old problem. I had a lot of very short files and the minimum allocation size for a file was such that it was taken over the limit, I was using over 1Mb.

The fix

So eventually I had to completely rethink my strategy on the poems so instead of a whole bunch of files each one containing a single poem I had to take the monolithic file approach, but being something of a wiz with databases (and being unwilling to pay for SQL database facilities though that may have to come eventually) I designed a file format and an index that speeded up access no end.

Even in the database world of super-fast servers you still have to think about these things and how access is going to be affected by your decisions.

It is easy if you have a simple site, you just write out each individual Web page maybe using WebChange to insert those regular items. But when it starts to get more sophisticated you must give serious thought to efficiency.

Web marketing

From that point onwards it just becomes a matter of trying to attract as many people as possible to your site. It is very much like a fair and all the punters are walking down the middle of the lane between all the brightly coloured booths and stalls on either side. How do you get them to stop and look at yours?

First off there is straight advertising, even a little bit on Google AdWords can generate a lot of business, it can help to kickstart your business. This is the equivalent of putting an advert in the programme for the fair.

Next is search engines: You can register but there's no guarantee you will get anywhere for a long time. With Yahoo you can pay money to get registered and yet even if you do they won't guarantee that you will get a listing. Just register yourself for free everywhere you can.

One thing search engines in general don't do anymore is look at keyword meta-tags. this was reported in a recent Search Engines report. Basically the facility had been abused so they have given that up.

Instead they will rate on the words in the body of the page but also a very big ratings puller for Search Engines is this: How many people link themselves to your site?

Getting reciprocal links worked out with like-minded Web sites (or even different, complementary, Web sites) is really important. On the one hand it will pull-in extra visitors but more importantly it gives your site a better rating on the Search Engines, the more links the better.

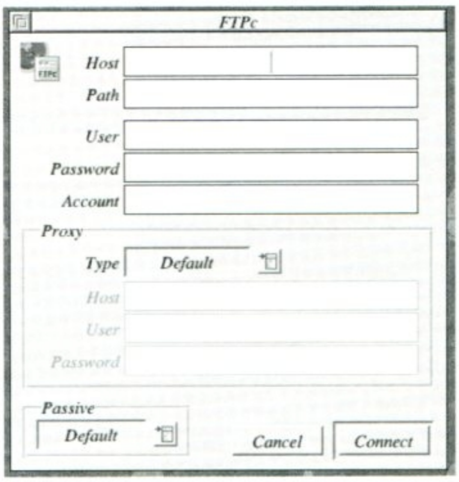
Summary

That about wraps it up for this short series on using RISC OS for Web site design. You can do it and you can do it well with a great deal of sophistication. So get to it and don't forget to credit the great people who have created the software, mostly free, to help you do it easily.

Steve Turnbull
steve@acornuser.com



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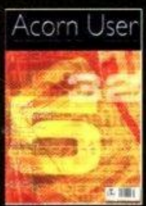
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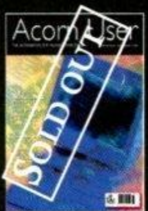
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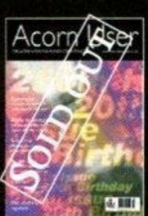
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MINI PC

Shock! Horror! Reviewing a PC in Acorn User, what on earth are they playing at. It's the worst, it's the pits... and so on, and so forth.

Yes it is true here we are reviewing a PC in Acorn User however we have our reasons and they will become clear as we go along.

I suppose the first reason is that we shouldn't bury our heads in the sand but instead actually look around and see if there is anything out there in PC land that is of any use to us. The fact is that with the availability of USB and other interfaces we only need drivers to use PCs.

In fact the use of a cheap PC as a printer driver for RISC OS machines across a network is precisely what the UniPrint article in this issue is all about. But I don't really think that you would buy this PC as a UniPrint attachment, admittedly it doesn't take up much space but it is really designed to be carried around.

The table shows the various specifications for the machines, there's the TX2 and the EX1, the machine that we had in for review was the EX1 which doesn't have an integrated CD/DVD. This is a plug in extra which is actually bigger than the EX1 itself.

For comparison purpose the closest I can come to describing the size of the EX1 is as a thick A5 book. It really is that small. But it's not a portable or laptop (or even chunky palmtop) machine, it is a full desktop machine in a portable package. In some ways it is reminiscent of the Acorn A4 in that respect, which was a complete A5000 crammed into an A4 notepad-sized box.

The EX1 is not designed to be a standalone machine that you can plug into the power socket on a Virgin train. At least not exactly, you would normally need to plug in a keyboard, mouse, monitor and so on.

Except the mouse and keyboard could be wireless (bluetooth) units, just like the Logitech models I am currently using on my Risc PC to write this review, using the Simtec USB card. You could have a wireless network card plugged in and use it while walking around with it in a pouch, which is where the education idea comes in.

The operating systems that you can buy for the EX1 range from Windows 98 up Windows XP and also RedHat Linux and this is where it probably starts to get interesting for RISC OS people.

VirtualAcorn

You will not have seen much about the VirtualAcorn in Acorn User and there are reasons for this however in this instance we have decided it is appropriate to discuss it.

VirtualAcorn allows you to run RISC OS, on Windows It can operate inside a window, just like any other Windows application, or run full screen. There is just one version which turns your PC into an A5000, with 16Mb of RAM and runs much faster than a real A5000 on suitable hardware. Potentially faster than a 287MHz StrongARM Risc PC if you have fast enough hardware, although it's going to take some advancement in PC hardware to get a VirtualAcorn that is as fast as an Iyonix.

So your first option is to buy the EX1 (or TX2) with just the Windows option and then add VirtualAcorn and behold you've got a RISC OS machine with the advantages of having a PC if you need them.

Quick disclaimer: I know I just wrote the "advantages of a PC". We all know why we don't like PCs, it's not the hardware it's the software. It is Microsoft with a clunky and awkward operating system that shows its age no matter how many bells and whistles they hang on it, and application software that tries to tell you how you should think instead of just doing as it's told. The fact remains that if you want to play a DVD on a computer then you are not going to do it on a RISC OS machine, you will do it on a PC or a Mac.

So anyway you can pick up your demo version of VirtualAcorn from www.virtualacorn.co.uk

Way of the Penguin

The second option to look at is Linux, there isn't a RISC OS emulator for Linux though it seems like a reasonably easy option for VirtualAcorn (I expect you would need a pretty powerful machine to get it working). But what there is is ROX.

Linux is designed so that it can be all things to all men depending on what you want, and there are different desktops you can choose. And it's nearly all free. It doesn't mean that you can't spend money on Linux software but you usually don't have to. A lot of work has been put into trying to make Linux less techie, but it just can't shake off that image.

It is it's versatility that is the problem in that respect. However the Linux community on the other hand is great for helping to develop new software, because you'll probably find

dozens of people willing to put time and energy into a project for nothing.

Into the fray comes ROX created by Thomas Leonard. The intention of ROX was to bring the best concepts of RISC OS to a desktop in Linux. In addition to that it also brings the ROX Filer which has the same capabilities of the RISC OS Filer, well rather more in fact. It would not be stretching things too much to suggest there is more time and effort being put into the programming of ROX was put into RISC OS in the heyday of Acorn themselves.

What you get in the ROX-Filer is a small, fast, powerful Filer for Unix, Linux and compatible systems. Its user interface supports RISC OS concepts such as application directories, drag-and-drop saving and pop-up menus. It also implements a RISC OS-like pinboard, and a panel which can be used in a similar way to the RISC OS iconbar. It also supports many features not found in RISC OS, including thumbnails of images, keyboard short-cuts, and so on.

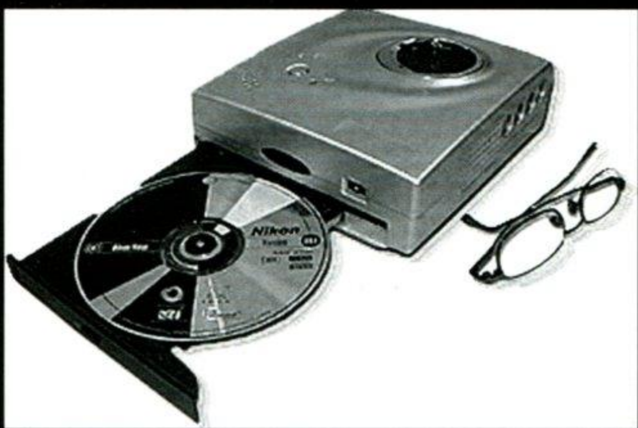
ROX-Filer can be used on its own, with another desktop (such as GNOME, KDE or XFCE), or as the core component of the ROX desktop. You can get it from:

http://rox.sourceforge.net/rox_filer.php3

Back to the EX1

And those are two reasons that you can use to buy it, of course, you could also use the UniPrint reason if that's what you need.

This is a great little piece of kit and it comes with its own carrying wallet that you can attach to a belt if you want to. There might be a suggestion that this is just a gimmick but with laptop prices still high if you want something decent this is an excellent choice and it has every interface you could possibly want.



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TX2	DVD + CD/RW	1.3Ghz CPU, 256Mb, 30Gb HDD. Ports: 4xUSB, 2xFirewire, 56K modem, 10/100 NIC, 1xserial, 1xprinter. IrDA Infra-Red, TV Out	£799
TX1	CD	1.3Ghz CPU, 256Mb, 30Gb HDD. Ports: 2xUSB, 56k Modem, 10/100 NIC, TV Out	£479
EX1		900Mhz CPU, 256Mb, 30Gb HDD. Ports: 2xUSB, 1xserial, 1xprinter.	£349
EX1	CD	900Mhz CPU, 256Mb, 30Gb HDD. Ports: 2xUSB, 1xserial, 1xprinter.	£375
EX1	DVD	900Mhz CPU, 256Mb, 30Gb HDD. Ports: 2xUSB, 1xserial, 1xprinter.	£399

Please note that specifications can change and it is best to check www.amazon.co.uk before buying.

All prices are in Sterling and exclude operating system, VAT and delivery. All systems come with 1 year limited warranty and are compatible with Windows XP, 2000, 98, ME, & Red Hat Linux. You have the choice to purchase without operating system.

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The Education Angle

Pam Turnbull writes: I was very impressed with the EX1 Mini PC. My immediate thought was that it would be very useful to be able to take it home, create all the lessons and then just carry it back and plug it straight into the Interactive Whiteboard. Most people don't realise just how tiresome it is having to do all the work at home and then remembering to stick it on a disk to bring it into work.

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Bundled Software

The two operating systems, RISC OS and Windows, are issued with software so that people can get started straight away. At least, in theory, they are. RISC OS is sent out with a lot of bundled software, exactly what you get does depend on which RISC OS machine you have but there is a core of similar software.

With Windows there is a problem. If you buy a named brand then the chances are you will get a decent wodge of bundled software, and you will pay for it. If you buy a cheap PC you might not even get an operating system. It's worth mentioning that if you do get some copy of Windows with it then the legality is dubious and you won't get any support. You will have to pay for any additional software to actually use it. You get what you pay for.

CharMap vs Chars

Windows' CharMap allows you to see characters in the font of your desire and copy them into an application.

Chars allows you to do exactly the same function, except that clicking on the symbol in this software immediately copies the character to the last active window, no copy and paste is required.

As with Windows this copies the character into the same font in the destination, regardless of what font is displayed in the Chars window. Chars does not however, give you the Alt-number shortcut to the character like CharMap, though Alt-number characters can be entered in the same way as on a PC, if you know what they are. There are improved versions of Char which you can get for free from the Web which do give you more information.

Paint vs Paint & Draw

Paint is the standard graphics application supplied with Windows. It changed its name from Paintbrush (on Windows 3.1) to Paint. In this article, I shall refer to Window's Paint as Paintbrush to avoid confusion.

As far as RISC OS is concerned Paintbrush's nearest equivalent is Paint, rather than Draw. I personally consider Paintbrush to be a far poorer version of Paint, but it does have features that are not available in Paint: Rotate and Stretch/Skew, though Paint does allow rotation and stretch/skew (called shear) of the whole picture. A mask (transparent, displayed as grey lines) is left around the borders of the picture if either of these is done.

The RISC OS sprite file format allows multiple images in a single file, whereas there is no native Windows format that permits that. This means that Paint can edit collections of images in one document.

Paintbrush can load different file formats Paint is less capable in this respect (latest versions will do JPEG files) although there are plenty of very good conversion utilities.

I have never managed to get Paintbrush to give me a picture with any form of transparency in it, and nobody can tell me how to. In Paint, it is simplicity itself to add a transparent 'mask' to a picture. Once you've created your new blank sprite, point at it, click Menu and tick Edit->Mask. When you now look at the palette window (show colours), a black and white barred colour now exists (you may need to expand your colours window to see it). This can now be used like any other colour.

On the enlarged, editable sprite, it appears as black and white bars, on the thumbnail window (entitled 'Sprite file window') transparencies can be seen as grey. This is because the box behind them is grey, and they are showing their transparency.

Due to its heritage the PC does not have a standard vector file format. This is a format where drawn objects are stored in terms of their characteristics (position, line width, fill colour and so on) rather than being drawn on to an image. This makes them completely editable, as you change them they are redrawn on the screen.

Not only does RISC OS have a standard, generic, vector file format but the code to display it is provided as standard in every version of RISC OS which means that every application that needs to display images can easily incorporate Draw files.

Incidently Mac OS did have a standard vector file format but it was not as versatile or expandable as Draw and has faded into the background while various major companies have created their own formats that no one else can use. Likewise on the PC.

Draw makes drawing a doddle on the Acorn. There is no equivalent to this vector graphics software supplied as standard on Windows. Draw is a superb tool for drawing and can be used as a simple, elementary DTP program. If you can get hold of it there is a commercial PC version of Draw, called OakDraw (from Oak Solutions, I think). It creates standard Draw files.

A standard vector file format is one of the things that makes RISC OS and associated software so good.

Taking screenshots

Screenshots can be taken on Windows by pressing the Print Screen button (the one RISC OS uses for print). Alt + Print Screen will only take a screen shot of the active Window, Print Screen will take the whole lot. Windows stores the image in the clipboard, from where it can be pasted to Paint or Microsoft Word.

Screenshots are taken on RISC OS clicking Menu on the iconbar Paint icon. Select Snapshot... then choose whether you want to snap the whole screen or a portion dragged out by the mouse, then whether you want top take the image immediately or after a timed delay. The reason for this is that you might want to bring up some menus before the snap takes place.

In all cases, once the image has been grabbed, Paint pops up a dialogue box which allows you to save the

image as a file which can either be dragged to a Filer window, another application or on to the Paint icon on the iconbar.

Text editing

Notepad on Windows is almost an exact match for Edit on RISC OS, a simple file manipulation tool. Notepad allows lines to have word wrapping applied. I'm afraid to say that I think that Notepad is actually slightly better than its RISC OS counterpart.

There are far better editors for RISC OS like Zap and StrongEd, but in this article I'm comparing the standard tools on each environment. Edit does however, score higher than Notepad in its translation of 'magic characters' such as new lines and tabs. Edit's search and replace functions are very versatile. Also Edit allows you to directly edit Basic files, it converts to and from the Basic format on the fly.



Edit also allows word wrapping too, but splits the word at the end of the line, so you can have half a word on one line and the other half on the next line. Both pieces of software allow the text font displayed to be changed, but Edit also allows the colours to be changed.

Edit has an annoying bug in that if you edit a large document, sometimes the screen isn't refreshed and you can have characters split in two vertically. On Notepad, sometimes hidden line returns become evident if you reformat your text.

A word of warning, loading a RISC OS text file into a PC can cause problems where the single newline characters are translated into useless little black blocks in Notepad and no returns are added. Convert the file by pressing Control + F8 in Edit and then put on the PC. These text files can be loaded into Word a bit more easily, but Word does tend to translate some characters you don't want translating.

Any file can be force-loaded into Edit by holding Shift when double-clicking a filename. Some files are meaningful, like Obey, BASIC, !Run or !boot files, but others, like Sprites, Drawfiles or JPEGs contain meaningless strings of data, which shouldn't be changed. Windows doesn't have this facility at all, but files of any type can be displayed using the DOS 'type' command, but some characters are translated to beeps or delete characters which can be very irritating.

WordPad

WordPad is a great little wordprocessor (it was called Write in Windows 3.1) that has some of the capabilities of MS Word, but not all of its annoying features. It is somewhere between MS Word and Notepad. It allows you to load an RISC OS-created text document and handles the line feeds perfectly, though, like Edit, it has a minor screen refresh problem.

There is no standard RISC OS word processor but most machines come bundled with Icon Technology's EasiWriter, or a cut-down version of that. This is a great program that will load MS Word files (and strip out any Word macro viruses). Unlike MS Word these RISC OS programs do not try to think for you and tell you what you should be doing.

Calc vs Calc/SciCalc

Both systems provide a calculator. On the PC, the calculator has an option to switch to Scientific mode (View-Scientific/Standard).

RISC OS has two calculators, Calc, a simple calculator, and SciCalc, a scientific calculator. As Calc is a little elementary, I'm only comparing SciCalc and Windows Calc. On RISC OS 3 the buttons don't look very good, merely boxes surrounding 'system font' text.

On RISC OS 4 the buttons look more like their Windows equivalents with nice bevelling making it look like it has 'real' buttons. Rather than having an INV button like on a conventional calculator and Windows' Calc, SciCalc uses the correct scientific names for the inverse of (say) Sin (Sine), ArcSine (ASN), ArcCosine (ACS), ArcTangent (ATN). It also allows you to enter Exponential numbers by use of the EXP button. There are extensive other options as well such as changing the base you work in.

Miscellaneous

Maestro is the bundled music software and there is no PC equivalent to this program provided, as standard. Similar PC programs could presumably be purchased to do the same. If you're into writing music then this software is ideal and extremely good, for a freebie.

Magnifier is really a gimmick but again there is no similar application to this on the PC. Effectively this is merely a magnifying glass for the RISC OS screen.

Madness is a silly program, that moves all your windows around, even though you can still use them. To quit it click close on it's icon.

Games

Windows comes with Minesweeper and Solitaire, which are both good games. Depending on where you buy from you might also get other games.

RISC OS comes with Puzzle (like the numeric tile-slide puzzle), and Patience. Patience, is in effect, the same game as Windows' Solitaire, though the graphics aren't nearly as good since it has barely been developed since 1987. Having said that, the game is very playable, but the pretty unstacking cards when completed on Windows' Solitaire, is replaced by the less-rewarding "Won: 1" message.

There is an abundance of commercial games for the PC, and the graphics on some of the newer games are exemplary although you usually have to have the latest hardware to run them.

There choice on RISC OS is minimal, due to the smaller user-base, but that's not to say that games are not being written for the platform, TEK 1608 has recently been released as a new game. Some of the older (less graphically detailed) games for RISC OS are very playable, many's the hours I have spent playing the 4th Dimension's Chopper Force, Holed Out (Golf) and Chocks Away - Extra Missions! Though it is unlikely these will be able to run on the Iyonix.

Next month we will look at more of the utility software available on the two systems and compare them.

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Talk the USB talk

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Last time I discussed how to talk to USB devices by using standard messages, but I made one vital assumption, that I knew the address of my USB device. Now that's all very well if you only have one thing plugged into the bus, but in practice there may be many devices attached.

What is more because they are hot-swappable, that is they can be plugged in and out at any time, it is not sufficient to simply look at the bus on power-up and assume nothing has changed when you come to use things. A proper grown-up USB driver will have calls into it from the USB firmware alerting it whenever a device is attached or removed. This mandates some sort of machine code routine, but there is still a lot we can do from BASIC for that special USB driver that only our application is concerned with.

It's a case of hunt the Snark, if you want to find the address of the device you are interested in. There are many ways you could identify your device, manufacturer's ID number, product ID number, device serial number or even a description string. It depends on what you are doing, there is a set of official tests that USB devices and drivers have to pass before they are allowed to be sold, one of these tests has two identical devices placed on the bus and the software has to be able to cope with them.

I don't want to consider industrial strength software at the moment, just the simple case of plugging in a device and wanting to find its address and a little bit more about it.

Now there is a subtle difference here with what I was talking about last time. Then we were talking to the USB device through the USB controller's interface. This time we are only talking to the USB controller's software. The USB controller itself has gathered all the information about the USB device during the enumeration phase when it is first connected to the bus. Then it has stored this, and allocated an address to that device. What we have to do is to acquire the controller's record of all the devices it has encountered.

On the Castle system there is a specific SWI that does this, and although it is recommended to use this function, another one was available and slightly easier to use than the recommended call.

This SWI is **USBOp_ReportConnected** it has a number of &54BC0, and it takes in constants 1 and &1D to tell it what to do, then it returns, in R2, a pointer to a chunk of RMA (Relocatable Module Area). This pointer is the start of a linked list containing information about all the USB devices currently connected to the computer. You find out how many devices are connected by following the links, and counting them, until you come up with a null link, that is a link with a value of zero.

This list contains a USBServiceAnswer structure for each connected device. If you are not a C programmer you might not be too conversant with the concept of structures, don't worry it's simply a list of memory locations and what they contain. The file that defines the ones we are interested in here is called USBDevFS, it's a header file found in a folder called simply h. It came with the sample software supplied with the USB card. The relevant entry is:

```
// A linked list element for use
when a client
// enquires what devices are
enumerated so far
typedef struct  USBServiceAnswer
USBServiceAnswer;
struct  USBServiceAnswer{
USBServiceAnswer  *link; // pointer
to next chunk
USBServiceCall       svc;  // a copy
of the information
};
```

Note that the double slash means everything that follows is a comment.

In this structure there are just two things a link (address) to the next structure and a copy of the information you want. However, this information is defined in another structure, its name is USBServiceCall.

So you then have to look through the file to find out how this structure is made up. You will find:-

```
// structure for service calls
// followed by an array of
USBDevFSEndpoints,
// an array of
USBEndpointDescriptors, (1 per
USBDevFSEndpoint)
// and an array of
USBInterfaceDescriptors
typedef struct USBServiceCall{
USBDeviceFSDevice         dev ;  //
root device
USBDevFSEndpoint        * ep;    //
ptr to base of an array
USBEndpointDescriptor * epd;  //
ptr to base of an array
USBInterfaceDescriptor* ifc;
// ptr to base of an array
uint16_t    neps;      // number of
endpoints in the array
uint16_t    nifs;     // number of
interfaces in the array
uint8_t      hostaddr;     // usb
address of upstream (hub)device
uint8_t     hostport;   // which
port on the hub
uint8_t      spare1;     // to
achieve word alignment again
uint8_t     spare2;    // to achieve
word alignment again
USBConfigDescriptor      config;
void                      * end;
// marker for end of this structure
}USBServiceCall;
```

Now this is a bit more complex mainly because it contains pointers to other arrays or structures that contain the information you want. The address of this device is found here but what device is it? It's the device descriptor that contains the information to uniquely identify a device and it is defined by:

```
// the main device descriptor
typedef struct USBDeviceDescriptor{
  uint8_t   length ;
  uint8_t   type;
  uint16_t  spec_release;
  uint8_t   devclass;
  uint8_t   devsubclass;
  uint8_t   protocol;
  uint8_t   max_packetsize;
  uint16_t  vendor;
  uint16_t  product;
  uint16_t  release;
  uint8_t   manufacturer_string;
  uint8_t   product_string;
```

```
  uint8_t   serial_string;
  uint8_t   num_configs;
}USBDeviceDescriptor;
```

Here we get down to the nitty gritty the "uint8" means it is an 8 bit number to be interpreted as an unsigned number, Unsigned INTeger 8 bits wide. From this we can gather the vendor and product ID which is sufficient to uniquely identify a device. This is because all vendor numbers are unique, and they allocate a product number for each different device they make.

Industrial strength programs will probably looking for more generic information that this. For example it might be more interested in finding a CompactFlash reading device than one made by a specific manufacturer. But here we just want to identify a specific device. You follow the USB bus by traversing the linked list until you find a null. Here is a snatch of BASIC that will count the number of devices on the bus:

```
3320 DEF PROCscan
3330 LOCAL a%,b%,p%
3340 SYS(&54BC0),1,&D2 TO a%,b%,p%
3350 usbDevices%=0
3360 a%=p%
3370 b%=0
3380 REPEAT
3390 b%+=1
3410 a%=!a%
3420 usbDevices%+=1
3430 UNTIL a%=0
3440 PRINT"Found ";usbDevices%;" USB devices"
3470ENDPROC
```

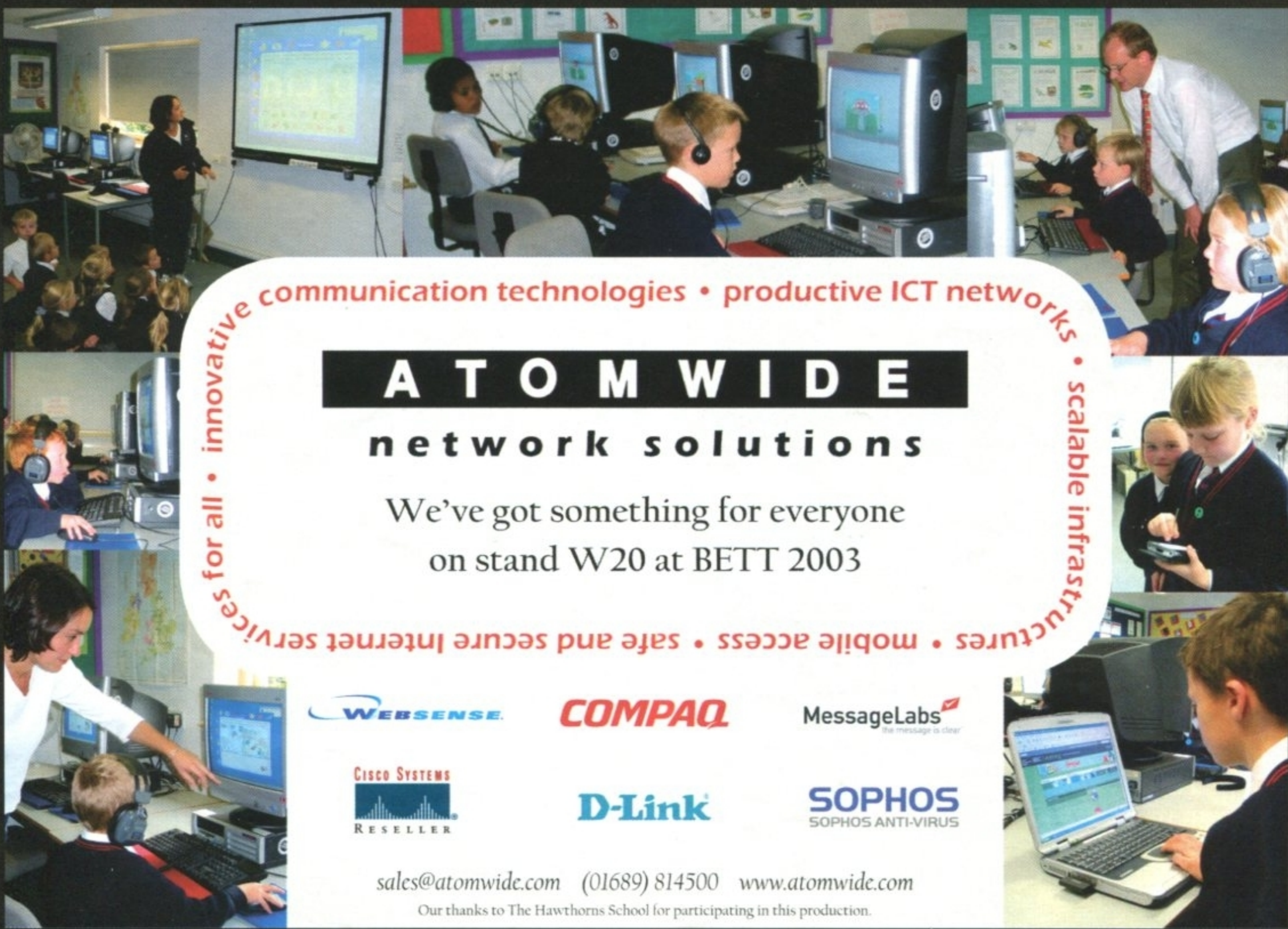


You can build this up into an application that displays all the information about each connected device, you end up with a mighty long list of numbers but they tell you everything you need to know to talk to a device. I have half-written an application called Probe that does a scan like this and displays a lot of the information.

I say half-written because it only shows the Device Descriptor and Configuration fields and has the interface and endpoint numbers show as "?", it's just that I haven't got round to filling them in yet. With a bit of luck your trusty editor should have placed it somewhere you can get at it.

So by using the application you can identify your device and then by incorporating those numbers into a scanning routine you can come up with that devices address. So now you don't have to write a program that hard codes your devices address. Best of luck with your explorations.

Mike Cook
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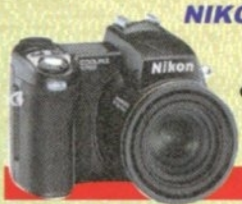


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Part 14: Are we nearly there yet?

Yes I suppose we are but there are few critical stages to go yet. In the last episode of this soap (or is it a drama series?) we looked mainly at using intersection records to connect categories and their entries.

This time around we are going further into intersection records with a slightly different way of using them, but first we will be taking a good look at why I have made a specific decision over certain selectors.

In Figure I you can see that the medium card has been modified to have two selectors, a couple of menus and some buttons added.

The purpose of these is very simple, on the left we can use the "Add category" menu to (surprisingly) add a new category to the list of categories for this record. We can also select one or more categories in the window and then remove them.

When we select a category for the medium the second window becomes active and we can add entries. The clever bit here is that only those entries applicable to that category are presented in the menu. You won't find the author of "Combat Robots" anywhere in the menu for the Singer category (unless he happens to bring out a CD extolling his love for Philippa Forrester).

If one or more entries is highlighted then the "Remove" button for this selector becomes available and we can remove them.

This is all very obvious for a seasoned RISC OS user and should behave exactly as predicted. However if you select two items in the Category selector then the Entry selector becomes de-selected. This is also fairly logical (otherwise it would become unclear which entries belong to which Categories) but why allow multiple categories to be selected in the first place? Why not make it only one?

If you look at Figure II you can see that originally I had this a select one type selector, there's a greyed out variable name in the deselected Expression field.

The reason is very simple: The "Select only one" option for selectors in S-Base is seriously flawed. If you use this option then the variable you use represents the entry that is currently selected. When you start off the variable should be -1 which is "none", no item is selected.

When you click an entry in the selector the variable's value is altered, zero is the first item, one is the second and so on. But (and this is the big but) you cannot de-select the selected item. You cannot go back to "none" with the variable at -1.

Some may not be bothered by that but I find it offensive to my programming aesthetics. Either "none" should be never available or it should be "regainable".

With the multiple select setting you can select and de-select any combination of entries in a selector and there is no problem one way or another. You simply use the bit manipulation routines to find out what is selected and/or protected.

Having a multiple select also means that we can remove more than one at a time, which has dubious value but if you've got a feature why not flaunt it?

Intersecting records

There is admittedly one small problem with writing this program around Christmas and then trying to write about it nearly two months later. I forget what I did, I know it was damn clever but how to explain...

In a normal "hands-off" database programming environment intersection records are ephemeral things that you don't get to play with directly. Exactly what they will become when S-Base gets its "Relation" resource going properly. However, for now, we can get down and dirty with intersection records and do something that would have my old database programming lecturers turning in their graves.

You see it's like this: We have this set-up whereby all category entries are thrown together in the same file and their linkage to the categories occurs through intersection records only. This means that an entry can be linked to more than one category (and each category can have more than one entry).

Now the next stage is to link

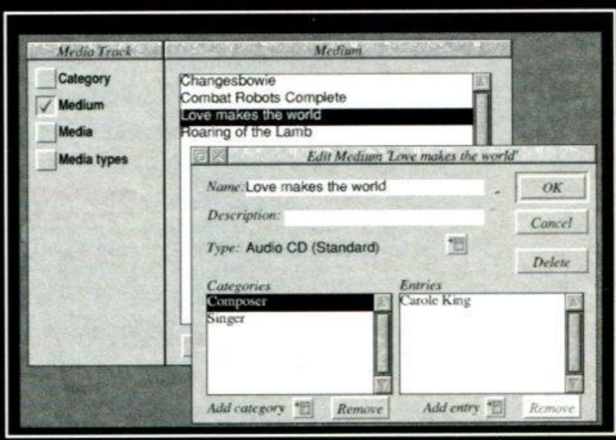


figure I

categories to "mediums", this is fairly okay, it's just another many-to-many intersection record set-up. I'm not going to explain that as it is exactly the same as for categories to entries. The next stage however is complicated.

We may link a category to a

"medium" but (and this is another £20 million but) only certain entries, possibly only one maybe even none will be selected for this category and medium.

Figure III is a diagram of the files and their relationships and includes the dirty trick that I am playing. The way we create the required linkage of "which category-entry belongs to which medium" is carried out.

We use another intersection record, at one end we have the entry but at the other end we point to the intersection record between the category and the medium. It is done this way for speed and smoothness of operation.

It means that given the medium and the category we can immediately find all those entry records that have ben linked to a medium.

You won't find anything like this on a "sensible" database system that hides all the linkage information, but we can do this here. I am not going to go into any major detail on this, if you have been following this series carefully then you should be able to figure out how the dirty work has been accomplished and locate where the dead bodies have been hidden.

But to get you started:

"catlink" joins the category and the entry (attrib)

"mclink" joins the category and the medium

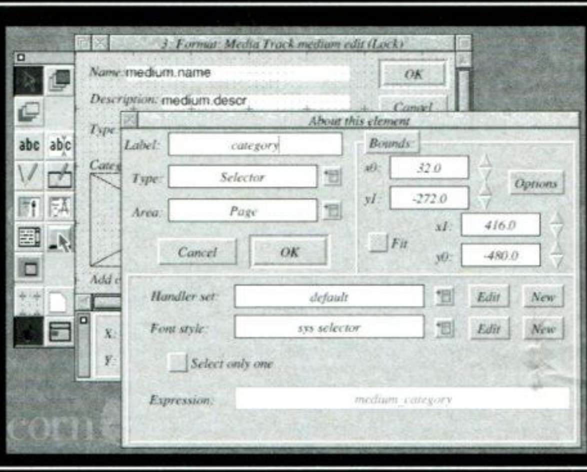


figure II

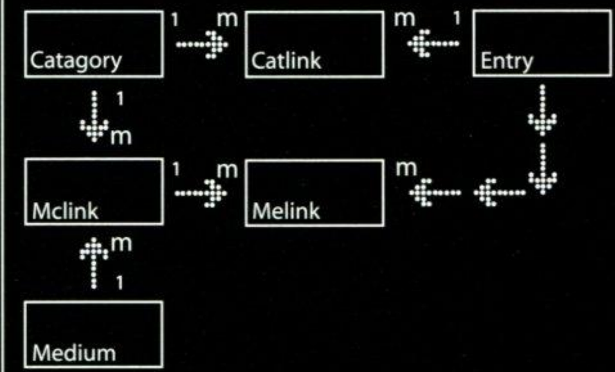


figure III

```
def proc medium_cardclick(zh,ze)
  local ch=@elementhandle(zh,"category")
  local eh=@elementhandle(zh,"attrib")
  local csh=@selectedhandle(ch)
  local esh=@selectedhandle(eh),ok=FALSE
  local cr,c_id
  if (@bitsetcount(csh)=0)
      cr=0
      c_id=-1
    else
      cr=@bget(cqh,@bitfirstset(csh))
      c_id=proc category_getid(cr)
    endif

  case (ze)
    when "menu media","menu category"
      local zn=proc control_find_zonename(@mid(ze,6))
      proc control_menu_maker(zh,zn,medium_zonenum)

    when "menu attrib"
      local zn=proc control_find_zonename(@mid(ze,6))
      proc attrib_category_menu_maker(zh,zn,medium_zonenum,cr)

    when "remove category"
      bit for csh,"medium_remove_category"
      proc medium_categoryfill(zh,medium.id,ch,eh)

    when "category"
      proc medium_entryfill(zh,medium.id,c_id,eh)
      proc medium_cardbtns(zh)

    when "remove attrib"
      local mc_id=proc mclink_getid(proc mclink_find(c_id,medium.id))
      bit for esh,"medium_remove_entry"
      proc medium_entryfill(zh,medium.id,c_id,eh)
      proc medium_cardbtns(zh)

    when "attrib"
      proc medium_cardbtns(zh)

    endcase
enddef
```

figure IV

```
def proc medium_cardmenuselect(zh,zn)
  local ch=@elementhandle(zh,"category")
  local eh=@elementhandle(zh,"attrib")
  local zr=0,ms=@menuselect(0),ok=TRUE

  case (zn)
    when media_zonenum
      case (ms)
        when 0
          proc media_new(zr,ok)
        otherwise
          zr=proc control_getzone_mqentry(zn,ms)
        endcase
      if (ok)
          medium.media_id = proc media_getid(zr)
          card update zh,"type"
        endif

    when category_zonenum
      case(ms)
        when 0
          proc category_new(zr,ok)
        otherwise
          zr=proc control_getzone_mqentry(zn,ms)
        endcase
      if (ok)
          local c_id=proc category_getid(zr)
          local m_id=medium.id,ok=FALSE
          if (proc mclink_find(c_id,m_id)=0)
              proc mclink_make(c_id,m_id)
              proc medium_categoryfill(zh,m_id,ch,eh)
            endif
        endif

    when attrib_zonenum
      local csh=@selectedhandle(ch)
      local c_id=proc category_getid(@bget(cqh,@bitfirstset(csh)))
      local mc_r=proc mclink_find(c_id,medium.id)
      zr=proc attrib_category_entry(zn,ms)
      proc melink_make(proc mclink_getid(mc_r),proc attrib_getid(zr))
      proc medium_entryfill(zh,medium.id,c_id,eh)

    endcase
enddef
```

figure V

"melink" joins the entry (attrib) and "mclink"

At this point it is probably worth mentioning about all the element selection and deselection that goes on while clicking entries in the selectors on the medium card, which is by far the most complex card we have created so far.

The code needed to effect these changes could have been written as handlers which could have been parts of handler sets attached to the selectors themselves. However this is entirely unnecessary and complex, we have already installed all the code we need in the standard handlers and procedure structure.

The selectors themselves are elements of the card and as such when they are clicked this click is reported as an event to the click handler for the card itself. The standard card click handler doesn't recognise the names of these elements as being ones that it knows about.

So, per the standard code sequence, we have created it sends the information to the _cardclick procedure as shown in Figure IV. I am not going to claim that this is the easiest code in the world to understand. But essentially it looks at which element of the card has been clicked and acts accordingly.

For the two menus it pops up the appropriate menu; for the remove icons it invokes the necessary procedure to delete that entry or category; for the category selector it calls the routine that fills the entry selector and adjusts the buttons; and finally for the entry selector it just adjusts the buttons if necessary.

For the menus we have to also have routine to handle the menu selections, this is shown in Figure IV. The first step is to figure out which menu has been selected from the three then act accordingly, either adding a category to the list, adding an entry or altering the selected media field.

As we know with this system of menus it is usually also possible to create new entries. In fact we have suppressed that ability in the entry menu, simply because I couldn't quite get my head around how it should work.

But, talking about being able to create records on the fly, one thing I have done is prevent the user from getting two deep into a stack of cards creating cards creating cards creating cards. Basically I have permitted the depth to go to only one level. Trust me, it's safer this way, I have travelled to the depths of recursive record creation and there lies madness.

Okay, that's it for this month. Because I have not gone into a blow by blow account of the exact details of every line of code we have moved very swiftly on to the point where I shall have to do some more coding.

There are only a couple more things to do: One is to explain the trick we use to put certain types of selector list into alphabetical order when we have got all the records together but they are not in the right order. The next stage after that is to talk about printing. This is a huge subject in itself because S-Base is very competent in that area.

We may well get through it all next time, so yes, we are nearly there.

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Olympus C5050zoom	£588	£602	£613
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Olympus E10	£798	£809	£820
Olympus E20	£1,098	£1114	£1121
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Pentax Optio 330GS	£248	£264	£271
Pentax Optio 330RS	£308	£324	£331
Pentax Optio 430	£418	£434	£441
Pentax Optio 430RS	£428	£444	£451
Ricoh Caplio RR1	£468	£479	£490
Ricoh Caplio RR10	£248	see website	see website
Ricoh RDC-i500	£398	£414	£421
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Txt is gd?

Just as e-mail was supposed to be the harbinger of the death of letter writing, the prevalence of text messaging among teens with its own form of alphabet-soup shorthand has educators debating the effect on students' writing habits.

Some linguists worry that the proliferation of text messaging is enforcing sloppy, undisciplined writing habits. Yet other experts, though, don't think the abbreviations will leave their mark on standard English. Is this argument raging only in the UK? No, in the States where the texting phenomenon has been slower to take off than in the Europe, they are being even more vociferous.

Jesse Sheidlower, principal editor of the U.S. office of the Oxford English Dictionary, said text messaging is going through the natural progression of language.

Much text-messaging lingo was first used in instant-messaging programs on personal computers, and some phrases, such as "SWAK" for "sealed with a kiss," have been used for decades, Sheidlower said.

As text messengers discover and share new abbreviations and acronyms, the language becomes familiar to a growing population of cell phone users. And as more people use the lingo for text messaging, Sheidlower said, it is more likely to spill into speech or writing. But that worries American University linguistics professor Naomi Baron, who said text messaging is another example of a trend in written communication. "So much of American society has become sloppy or laissez faire about the mechanics of writing," Baron said.

On the other side of the argument "Language and languages change is normal," says Carolyn Adger, director of the Language in Society Division of the Center for Applied Linguistics in Washington, D.C. "Innovating with language isn't dangerous. I think that all of this stuff is really wonderful, because it's expanding the writing skills of people," she said.

Worry not, America. Text messaging hardly appears to have hurt written language in Europe, where 10 billion text messages are sent each month. In fact, as more adults began using text messaging in Britain and Germany, the lingo fell out of favor, says Alex Bergs, a visiting linguistics professor at the University of Wisconsin-Milwaukee. Even teenagers use the language for only a while, he said. With predictive type it is easier to write the words in full.

The domain of edu

Beauty, theological, and distance-learning schools will be among the educational institutions that soon will share online real estate with Oxford and Harvard. And the reason? The US Commerce Department has just approved the expansion of the ".edu" domain name to allow usage by schools with post-secondary distance-education programs, as well as specialty and training programs.

Critics complain the expansion will cheapen the Internet neighbourhood for its present occupants Ñ generally four-year institutions and community colleges.

In 2001, a university technology consortium took over management of the suffix and expanded eligibility to community colleges, which are accredited by the same six regional accreditation agencies as four-year institutions. The technology consortium, Educause, then recommended further changes to include schools approved by the 28 specialty accreditation organizations recognized by the U.S. Department of Education. These include the Distance Education and Training Council, as well as the Midwifery Education Accreditation Council and the American Board of Funeral Service Education.

The London Business School and think tanks such as the Brookings Institution had already got their ".edu" names before restrictions took effect and will probably keep their names, though they would not be eligible today, even with the latest expansion.

Michael P. Lambert, executive director of the Distance Education and Training Council, said the change would end discrimination against certain distance-education programs. "Consider yourself, would you go to a dot-com school when you can go to a dot-edu one?" he said. "We think it's a wonderful way of leveling the playing field."

Succinct science

To celebrate National Science Week, The THES and the BA are bringing you the Ig Nobel Show. The show, which will call at London (March 7th), Manchester (10th), Edinburgh (11th), Leicester (12th) and Bristol (13th), where it is intended to honour the world's most original research.

The Ig Nobel show will also feature 24/7 where contestants have to explain their research in 24 seconds and seven words. Are you game?

Can we plumb it!

With the dearth of tradesmen from plasterers to plumbers. The adventures of Bob the Builder is being cited as inspiring a future generation of construction workers. It has certainly taken to technology well with a popular Web site and new PC CD-ROM. So much so, that the plumbing industry has decided to take a leaf out of the same book by launching a series of adventures featuring Peter the Plumber. Watch this space!

RM picks up the fight

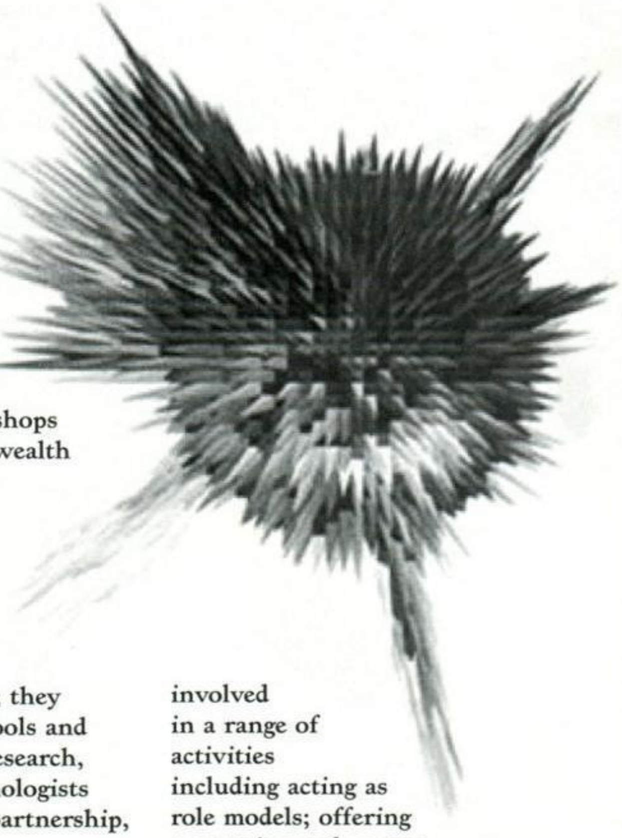
The BBC and Research Machines are about to go head to head in the High Court, to challenge the Beeb's plans to provide free material to schools under the "digital curriculum".

The judicial review will hear claims from RM and more than a dozen other software companies that the Government's award of the contract to the BBC followed improper procedures at the Corporation. If successful, the groups may then take the Government to court.

The case goes to the heart of the private sector's complaints about the increasingly commercial activities of the BBC which, it is said, uses licence payers' money to provide services that private businesses would otherwise have met.

Only earlier this month, the Department for Culture gave the BBC approval to develop a range of online educational products. The corporation will spend £150 million over the next five years to produce the material but the BBC will give it away for free to schools.

Where have all the engineers gone?



In the UK today we do not have enough young people taking courses in engineering. Instead, perhaps with some idea of a quick route into TV, young people seem to prefer soft subjects like Media Studies.

Nor do we have enough decorators, plumbers or construction workers. The construction industry is apparently benefiting from Bob the Builder and the plumbing industry is trying the same thing (see Education News). In fact if you're female and can afford to take a year or so off work to take the professional plumbers course you will be in the money for the rest of your life.

However, this article is about Engineers and Scientists. There are a number of initiatives in this area, one being the Young Engineers with clubs in 1,600 schools across the UK, funded by such organisations as BT this organisation sets up engineering challenges, such as robot building, for the schools to compete against one another. The TV show Robot Wars has its own builders club with tens of thousands of members who would rather be competitors than mere spectators.

However one further option is SETNET ...

SETNET is a collaborative forum of education organisations, institutions, professional bodies and charities and major companies established in the field of education/business links. Funded by Government and the engineering industry, it takes the form of a company limited by guarantee, which has charitable status.

SETNET operates across the UK through its local 'centres of excellence': SETPOINTs. There are now 53 of these 'approved agents' one-stop shops which support and have a wealth of information about resources, schemes and initiatives based on science, engineering, technology and mathematics. Their aim is to help and inspire young people about these subjects; they achieve this by linking schools and pupils with industry and research, and having scientists, technologists and engineers working in partnership, promoting excellence.

Ambassadors of cool

As part of SETNET's ongoing mission, they have created Science and Engineering Ambassadors to make science and technical subjects 'cool'. Yvonne Baker, is the Manager of Science & Engineering Ambassadors for SETNET: "We need to find more scientists, engineers, mathematicians and technologists who have enthusiasm, commitment and good communication skills.

"We plan to use this unique and unmatched resource, of vetted and briefed Ambassadors, to become involved in a range of activities including acting as role models; offering mentoring and careers guidance; helping to provide work experience placements for teachers and students and supporting school clubs, awards and competitions".

SETNET is helping to bring about a metamorphosis in the thinking of young people in the area of Science and Engineering. Britain was once the greatest engineering nation in the world and it should be something we strive to regain, even since the engineering skills waned many of the greatest ideas of the 20 century originated in the UK.

Jo Giles
jogiles@acornuser.com

Find out more

VISIT: www.setnet.org.uk
To register interest in becoming an Ambassador, contact Yvonne Baker:
Tel: 0800 146415 or email:
yvonne@setnet.demon.co.uk

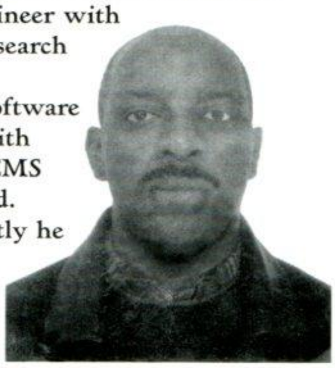
A case in point...

Meet Melvyn Nicholas, from Walthamstow in London, an engineering professional who is now a SEA or Science and Engineering Ambassador. A member of the Institute of Electrical Engineers and a Chartered Engineers, Melvyn will work with SETPOINT East London, to help inspire an enthusiasm for science and technical subjects.

"I'm thrilled to have the chance to give something back to the Industry by inspiring the future generation of scientists and engineers within our schools", said Melvyn. "I'm hoping my experience of technical problem solving, team work, 'hands-on' engineering experience and project organisation will stand me in good stead - but I'm certainly anticipating to a few surprises along the way."

Since graduating from the University of Westminster with a BEng in Control & Computer Engineering, he went on to complete a MSc. in Advanced Methods of Computer Science, at the University of London and has gained the Certificate of Engineering Management.

His career began as Graduate Engineer with the Ministry of Defence. He has since worked as Principal Software Engineer with Marconi Electronic Systems; Senior Project Engineer with Defence Research Agency and Principal Software Engineer with BAE SYSTEMS Avionics Ltd. Until recently he was as a Systems Engineer for Xerox and is now in the throes of setting up his own business.



"Melvyn is an excellent communicator and a great team player", said Bernie Holloway, SETPOINT East London. "We are delighted to welcome him on board and hope that other individuals and organisations in the area will be inspired to take his lead and find out how they too might get involved."

The Ambassadors programme has replaced the Neighbourhood Engineers Programme, run by the Engineering Council and ETB. This programme placed over 8,000 engineers into schools across the country for over 15 years to assist them in their understanding and enthusiasm for engineering. Do you think you could make a difference and become an ambassador?

SETNET events

British Festival of Space

When? 10th-12th July
Where? University of Surrey, Guildford
Contact: **www.britishfestival-ofspace.co.uk**
The 11th July has been designated as the Schools Day and will have a careers fair with information about the various jobs in the space industry and special events for schools. The Festival will be open to the public on 12th July.

Design and Technology Week
When? 23-27 June

Contact: **www.data.org.uk**
The Design Council will be sending designers into secondary schools during the week with priority being given to D&T departments with DATA members. If you would like a designer to visit your school e-mail Julia Thomas **juliat@designcouncil.org.uk** or phone 020 7420 5264

This year the British Nutrition Foundation and the East Midlands Textiles Association will be joining the event with the National Association of Advisers and Inspectors in Design and Technology, the Design Council and the Technology Enhancement Programme. Technology Teaching Systems will also be making special offers on materials to be used during the Week.

Visions of Science Young Photographer Award

Contact: **www.visions-of-science.co.uk** or phone 020 7613 5577
This year, for the first time, the national Novartis and Daily Telegraph Visions of Science Photographic Awards have a special award for students. The prize is a superb digital camera in the under 16 year age group and in the 17-18 year age group. Teachers also have the chance to win £1,000 by entering any of the main categories.

Winners and highly commended entries are invited to attend an Awards Ceremony at the Royal Society in London, meet Dr Adam Hart-Davis and leading scientists, will have their images displayed in a national touring exhibition of the Visions of Science images and may have their images printed in national and scientific press. The schools of the winners and highly commended entries will receive a special certificate.

The Awards are looking for pictures that show science in our everyday lives, in nature, medicine, food, technology, engineering and art. So, images might be inspired by an event in the natural world, show life under a microscope, people in science, a concept about science or simply be artistic images of the world around us. When thinking about entries, students might find it helpful to follow ideas from the five main categories listed in the competition entry form.

Digital Childhoods Conference

When? 5-6 March 2003
Where? Robinson College, Cambridge
Contact: **www.nestafuturelab.org**
NESTA (the National Endowment for Science, Technology and the Arts) is hosting the conference, looking at the future of learning for the under 10s. The five main themes of the conference are: play and learning; children as co-designers: home-school links; Early Years and Tangible Interfaces.

Castle Reply

The 10th February 2003: Castle Technology Limited note with interest the recent discussion regarding their IYONIX computer, the world's first desktop computer to use the Intel XScale processor.

Following discussions with Russell King and with this in mind, Castle should like to respond to claims originally proposed in Justin Fletcher's "ReadMe.txt" file and Russell King's subsequent posting to the Linux Kernel Mailing List:

The RISC OS 5.00 kernel did not contain work taken from or derived from the ARM-Linux or Linux kernel.

The RISC OS 5.01 kernel did not contain work taken from or derived from the ARM-Linux or Linux kernel.

The RISC OS 5.02 kernel does not contain work taken from or derived from the ARM-Linux or Linux kernel.

There are no plans to use GPL-derived code in any part of the RISC OS kernel in the future.

For the avoidance of doubt, the hardware abstraction layer (roughly analogous to a PC's BIOS) has its PCI allocation and bridge set-up based in part on the following functions from the Linux kernel sources:

pci_alloc_primary_bus
pbus_size_bridges
pbus_assign_resources_sorted
pci_setup_bridge
pci_bridge_check_ranges
pbus_size_mem
pbus_assign_resources
pci_assign_unassigned_resources
pci_scan_bus
pcibios_update_resource
pci_read_bases
pci_alloc_bus
pci_add_new_bus
pci_do_scan_bus
pci_scan_bridge
pci_setup_device
pci_scan_device
pci_scan_slot
pcibios_fixup_bus
pci_calc_resource_flags
pci_size
pdev_fixup_device_resources
pbus_assign_bus_resources
pci_do_scan_bus
pcibios_fixup_pbus_ranges
pci_assign_resource
pdev_sort_resources
pdev_enable_device
pbus_size_io

Any company or individual wishing to receive a copy of the source code to this component should apply in writing to:

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Enclosing a formatted 3.5" floppy disk and return postage stamps, or international reply coupons for those outside the United Kingdom.

These sources will also form an integral part of a forthcoming Linux port to the IYONIX.

With the tough goal of fitting all of the supporting software and applications for the IYONIX computer into just 4Mbytes of ROM, later issues of the supporting software have had to have function names removed (along with a strategy of tokenising textual messages and compressing binaries) to make room for, in particular, the support for the 'boot keyboard' USB drivers.

Mike Williams
On behalf of Castle Technology Ltd

Spam Spam Spam (again)

I am really getting annoyed. I am having increasing problems with spam messages on my e-mail. It has been slowly increasing over time and now I get more spam messages everyday than I get proper e-mails and I really don't know what to do about it.

I can put up with messages asking me to take part in ludicrous schemes that I have been especially selected for, though apparently I have been especially selected by several different people for exactly the same scheme repeatedly for several weeks.

I can even put up with US companies asking me whether I want to have my cesspool improved. They must have a lot of cesspools in the United States, that might explain a lot.

But I am really getting concerned about the e-mails inviting me to go to Web sites with pornography. I have young children and as they grow up I want to be able to keep this type of thing out of their way, at least until they are old enough to understand how truly awful it really is.

Please can you help? In case you need to know I am using R-Comp's Internet software with Messenger 2.

Liam Reynolds
via e-mail

This is something that many people have expressed a concern about and I think we are due for a full article on it.

The first step in avoiding spam is to stop your e-mails from getting into the hands of the spammers. There are three potential ways they can do it: Via a Web site with your name on; through you posting to newsgroups; and joining e-mail groups of one sort or another.

So never put your e-mail address on a Web site except in protected ways; if you must post to newsgroups learn how to protect your e-mail address; and get a free e-mail address off Yahoo or Hotmail to use on e-mail lists, you can always dump it when you get too much spam.

Unfortunately if your address is already in the hands of the spammers it's probably too late. You can either change your address completely; use a spam scanner like MailScout; or employ an e-mail laundering service, a commercial company that will try to wipe out all the spam before it gets to you.



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IYONIX PC MAX SPECIAL OFFER SPECIFICATION

MEMORY/HD/CDRW SPECIFICATIONS

Hard drive	100GB
CDRW	48-speed write, 24-speed re-write, 48-speed read
Floppy drive	Standard 3.5" supporting ADFS, DOS and Atari from 360K to 1.6MB
Memory	512MB 64-bit 200MHz DDR RAM

CASE – MicroATX midi tower

2 x 5.25" bays — 'Soft On' switch on front

3 x 3.5" bays (1 hidden) — 'Reset' recessed on front

4 x PCI slots

Dimensions(mm) 360H x 185W x 402D (must stand min 65mm from wall)

PSU

Input 115-230 volts 50-60Hz

250Watt PSU with silent mode

On/off switch

MOTHERBOARD FEATURES

Size	MicroATX
Processor	600MHz XScale 80321
Sound	CD quality AC97, 16bit soundblaster compatible
Unique ID	MAC address
PCI signalling	3.3v
Video	Resolutions of up to 2048 x 1536 pixels in 16 million colours

EXTERNAL PORTS

2 x RS232 Serial ports

10/100/1000 base twisted pair networking port

Audio in socket

Microphone socket

Audio out/Headphone socket

Video

4 x USB (2 front, 2 rear) – USB-to-parallel cable also available

INTERNAL CONNECTORS

2 x IDE connectors UDMA100 supporting 2 drives per connector (1 occupied)

32-bit EASI podule expansion socket (2 slot backplane required)

FDD connector (occupied)

DDR RAM socket (occupied)

PCI EXPANSION

2 x 64-bit; 2 x 32-bit

(1 – nVidia Geforce 2 MX400 graphics card,

1 – USB 1.1 expansion card USB,

2 – unoccupied for customer use)

OPERATING SYSTEM

RISC OS 5 held in 4MB FLASHROM

(field upgradeable)

KEYBOARD

UK 105 key, soft-touch, membrane USB keyboard

MOUSE

3 button USB mouse

SOFTWARE

Writer +	Fireworkz	Oregano 2
MessengerLITE	Dialer	CDBurn Lite

+ many other applications and demo software

CASTLE

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Suffolk IP13 9LL

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E-mail: sales@iyonix.com
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Other specifications available: call 01728 723200 or visit www.iyonix.com


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